

4000 Base Unit

Portable, modular Platform designed for the construction, validation and maintenance of FTTx networks

User Manual

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User Manual

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WEEE Directive Compliance JDSU has established processes in compliance with the Waste Electrical and Electronic Equipment (WEEE) Directive, 2002/96/EC.

This product should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations. In the European Union, all equipment purchased from JDSU after 2005-08-13 can be returned for disposal at the end of its useful life. JDSU will ensure that all waste equipment returned is reused, recycled, or disposed of in an environmentally friendly manner, and in compliance with all applicable national and international waste legislation.

It is the responsibility of the equipment owner to return the equipment to JDSU for appropriate disposal. If the equipment was imported by a reseller whose name or logo is marked on the equipment, then the owner should return the equipment directly to the reseller.

Instructions for returning waste equipment to JDSU can be found in the Environmental section of JDSU's web site at www.jdsu.com. If you have questions concerning disposal of your equipment, contact JDSU's WEEE Program Management team at WEEE.EMEA@jdsu.com.

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About This Guide

The 4000 Base-Unit of JDSU provides a portable, modular platform designed for the construction, validation and maintenance of FTTx networks.

The topics discussed in this chapter are as follows:

- “Purpose and scope” on page xii
- “Assumptions” on page xii
- “Technical assistance” on page xii
- “Recycling Information” on page xiii
- “Conventions” on page xiii

Purpose and scope

The purpose of this guide is to help you successfully use the 4000 Base-Unit features and capabilities. This guide includes task-based instructions that describe how to install, configure, use, and troubleshoot the 4000 Base-Unit.

Additionally, this guide provides a complete description of JDSU's warranty, services, and repair information, including terms and conditions of the licensing agreement.

Assumptions

This guide is intended for novice, intermediate, and experienced users who want to use the 4000 Base-Unit effectively and efficiently. We are assuming that you have basic computer and mouse/track ball experience and are familiar with basic telecommunication concepts and terminology.

Technical assistance

If you need assistance or have questions related to the use of this product, call or e-mail JDSU's Technical Assistance Center for customer support.

Table 1 Technical assistance centers

Region	Phone Number	
Americas Telecom Products	866 228 3762 World Wide: 301 353 1550	tac@jdsu.com
Europe, Africa, and Mid-East	+49 (0) 7121 86 1345 (Europe)	hotline.europe@jdsu.com
	+33 (0) 1 30 81 50 60 (JDSU France)	support.france@jdsu.com
Asia and the Pacific Southeast Asia, Aus- tralia, and New Zea- land	+852 2892 0990 (Hong Kong)	
	+86 10 6833 7477 (Beijing-China)	
All others	866 228 3762	tac@jdsu.com

During off-hours, you can request assistance by doing one of the following:

- leave a voice mail message at the Technical Assistance number in your region
- e-mail North American Technical Assistance Center, tac@jdsu.com, or European Technical Assistance Center, support.uk@jdsu.com
- submit your question using our online Technical Assistance Request form at www.jdsu.com.

Recycling Information

JDSU recommends that customers dispose of their instruments and peripherals in an environmentally sound manner. Potential methods include reuse of parts or whole products and recycling of products components, and/or materials.



Waste Electrical and electronic Equipment (WEEE) Directive

In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

Conventions

This guide uses naming conventions and symbols, as described in the following tables.

Table 2 Typographical conventions

Description	Example
User interface actions appear in this typeface .	On the Status bar, click Start .
Buttons or switches that you press on a unit appear in this TYPEFACE .	Press the ON switch
Code and output messages appear in this typeface.	All results okay

Table 2 Typographical conventions (Continued)

Description	Example
Text you must type exactly as shown appears in this type-face .	Type: a:\set.exe in the dialog box
Variables appear in this type-face .	Type the new hostname .
Book references appear in this typeface .	Refer to Newton's Telecom Dictionary
A vertical bar means "or": only one option can appear in a single command.	platform [a b e]
Square brackets [] indicate an optional argument.	login [platform name]
Slanted brackets < > group required arguments.	<password>

Table 3 Keyboard and menu conventions

Description	Example
A plus sign + indicates simultaneous keystrokes.	Press Ctrl+s
A comma indicates consecutive key strokes.	Press Alt+f,s
A slanted bracket indicates choosing a submenu from menu.	On the menu bar, click Start > Program Files .

Table 4 Symbol conventions

	This symbol represents a general hazard.
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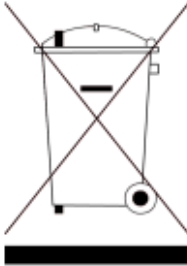


This symbol represents a risk of electrical shock.



NOTE

This symbol represents a Note indicating related information or tip.



This symbol, located on the equipment or its packaging indicates that the equipment must not be disposed of in a land-fill site or as municipal waste, and should be disposed of according to your national regulations.

Table 5 Safety definitions



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Introducing the 4000 Base Unit

1

The JDSU 4000 Base Unit is a portable, modular platform designed for the construction, commissioning and maintenance of FTTx networks.

The topics discussed in this chapter are as follows:

- [“Terminology used in this manual” on page 2](#)
- [“Laser safety” on page 2](#)
- [“AC/DC and battery important safety instructions” on page 3](#)
- [“Architecture” on page 4](#)
- [“User interface” on page 5](#)
- [“Technology” on page 6](#)
- [“Mechanical strength” on page 6](#)
- [“Software” on page 6](#)
- [“Measurements” on page 7](#)

Terminology used in this manual

To designate the modules making up the 4000 Base Unit, the following conventions have been adopted:

- User Interface Module designates the module comprising the screen and controls.
- Battery designates the compartment where the battery is set.
- Module designates, for example, the OTDR.

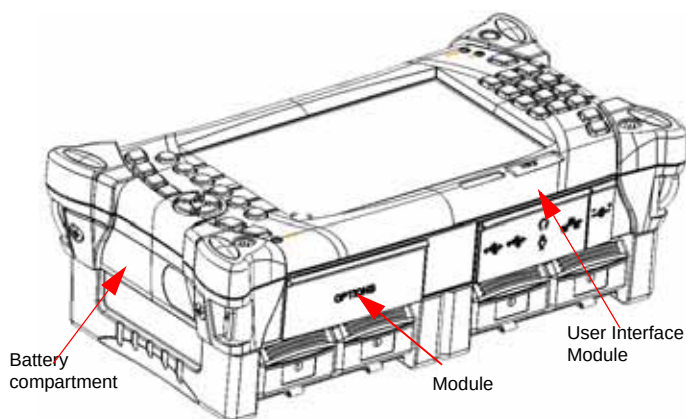


Fig. 1 Designations of sub-assemblies of the 4000 Base Unit

Laser safety

The provisions contained in two standards define the safety procedures to be observed both by users and by manufacturers when utilizing laser products:

- EN 60825-1: 2001 - Safety of laser products – Part 1: Classification of products, requirements and user guidelines.
- FDA 21 CFR § 1040.10 - Performance standards for light-emitting products - Laser products.

Due to the range of possible wavelengths, power values and injection characteristics of a laser beam, the risks inherent in its usage vary. The laser classes form groups representing different safety thresholds.

Laser classes Standards EN 60825-1, Edition 1.2, 2001-08 and FDA21CFR§1040.10:
– VFL option: Class 2.

Warning labels for the laser classes Due to the reduced dimensions of the optical modules, it is not possible to attach the required warning labels to them. In line with the provisions of Article 5.1 of the EN 60825-1 standard, the laser class identification labels are shown below:

Reference standard	EN 60825-1, Edition 1.2, 2001- 08	FDA21CFR§1040.10
Class 1	CLASS 1 LASER PRODUCT	
Class 2	LASER RADIATION DO NOT STARE INTO BEAM CLASS 2 LASER PRODUCT	CAUTION LASER RADIATION - DO NOT STARE INTO BEAM  CLASS II LASER PRODUCT

The user must take the necessary precautions concerning the optical output of the instrument and follow the manufacturer's instructions.



Measurements on optical fibers are difficult to execute and the precision of the results obtained depends largely on the precautions taken by the user.

AC/DC and battery important safety instructions



In conformance with the recommendations of standard EN 61010, the instrument should be operated within the manufacturer's guidelines. Failure to do so may compromise the protection offered by the instrument's design.

The 4000 Base Unit is supplied with a Lithium Ion rechargeable battery.



Do not use any mains adaptor or battery other than those supplied with the instrument, or supplied by JDSU as an option for this instrument.

Batteries supplied by JDSU incorporate protection means.

If another adapter or battery is used, it may damage the 4000 Base Unit itself. Using the 4000 Base Unit with batteries other than those supplied by the manufacturer of the 4000 Base Unit may entail risks of fire or explosion.

- The battery may explode, leak or catch fire:
 - if it is exposed to high temperature or fire
 - if it is opened or dismantled.

Other basic safety precautions are as follows:

- Do not use AC/Adapter/Charger outdoors or in wet or damp locations
- Connect the AC/Adapter/Charger to the correct mains voltage, as indicated on the ratings label.
- This product is intended to be used with a 3-wire grounding-type plug (a plug that has a grounding pin). This safety feature is vital to the safe operation of the instrument. Do not defeat the purpose of the grounding-type by modifying the plug or using an adapter.
- Do not allow anything to rest on the power cord, and do not locate the product where people can walk on the power cord.
- Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use this product in the vicinity of a gas leak or in any explosive environment.
- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous, high voltage points and other hazards. Contact qualified service personnel for all service.

The 4000 Base Unit is equipped with a main supply for optical configurations

Architecture

The architecture of the 4000 Base Unit is based on the superimposition of modules. This structure adapts to current applications in fiber optics and will adapt to future applications.

By the addition of modules, a lightweight battery-operated field instrument suitable for optical network maintenance can be converted into a complete apparatus with a high-level of performance and functions for the installation and upgrading of FTTx networks.

Modules are easily interchangeable in the field, reducing the number of instruments to be carried.

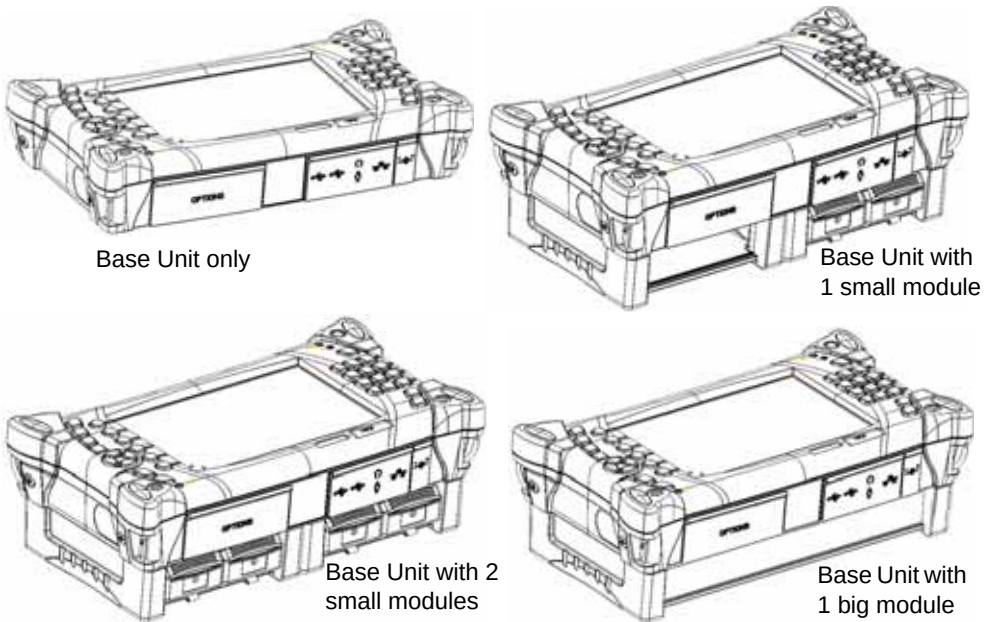


Fig. 2 Possible configurations of the 4000 Base Unit

Whatever its configuration, the Platform 4000 has a user interface module with screen and controls and a battery compartment.

Maximum configuration of the 4000 Base Unit

In addition to the user interface module, the 4000 Base Unit can include one big module, one small module and the other one empty, or two small modules.

User interface

The topmost element of the 4000 Base Unit constitutes the user interface.

It is equipped with:

- a 7 inch TFT color screen, high visibility (optimized for outdoor use), which can be touchscreen on option
- hard keys or tactile keys (if the touchscreen option is available)
- numerous functions such as Fault Locator VFL (Visual Fault Location), power meter, optical microscope, bluetooth etc.
- remote front panel function etc.

The particularly simple user interface means familiarity with the instrument is quickly attained. This interface remains the same, irrespective of the options and modules with which the instrument may be equipped.

An external keyboard and a mouse (on option) facilitate data input.

Technology

The 4000 Base Unit employs multi-tasking for the simultaneous performance of several operations (such as acquisition, modification of parameters, trace analysis, printing) and several functions (for example powermeter, OTDR measurements).

The measurement results can be stored in the internal memory (512Mb), or on the following options:

- internal memory extension (1 Gbyte)
- plug-in media (USB memory stick)

Mechanical strength

Although it is extremely light, the housing of the 4000 Base Unit can resist harsh environmental conditions:

- its rubber protectors give it high shock resistance
- it resists water splashes.

The modules are very simple to install, requiring only a screwdriver.

Software

The software can be easily updated from a CD-ROM onto the PC, from Ethernet, or from a USB stick .

Measurements

The 4000 Base Unit can be used to test FTTx networks:

- during the phase of design and production of equipment
- during the phase of installation and validation of such equipment in a network
- during the phase of network maintenance

Starting up

2

This chapter explains the operations to be carried out before using the 4000 Platform.

The topics discussed in this chapter are as follows:

- “Unpacking the instrument” on page 10
- “Assembling the component parts of the 4000 Platform” on page 10
- “Choosing the position of the instrument on the work surface” on page 11
- “Battery management” on page 13
- “Switching the 4000 Platform on and off” on page 17
- “Presentation page of the 4000 Platform” on page 19
- “Troubleshooting” on page 20

Unpacking the instrument

Remove the 4000 Platform and its accessories from the packing case. Check that the modules and accessories ordered are all there.

If any part is missing or damaged please contact your local JDSU agent.

The 4000 Platform is delivered with the following accessories:

- a USB memory stick, containing the User Manuals for 4000 Platform, and modules.
- a battery which must be charged before use.
- a mains adapter used for mains operation of the instrument and battery charging
- a glove for the 4000 Platform (standard)
- a soft carrying case for the 4000 Platform (option)
- a large soft case for one big module or two smalls, according to the module(s) ordered
- a small soft case for one small module, if one small module has been ordered

Assembling the component parts of the 4000 Platform

- Assembly starts from the Interface module, which is placed face down on the work surface.
- The module(s) must then be fixed in place one after the other, using a screwdriver.

Fitting and removing a module



The 4000 Platform must be switched off, and if it is operating on the mains, its supply cable must be unplugged.

To fit a module

- Turn the instrument face down on the work surface.
- Set the two notches on the module part (1a) into the two holes provided for that purpose on the Base (1b).

- Make flush the 2 connections (2a & 2b), on module and base.
- Once positioned, fix the module to the base screwing the 2 screws fixing the receptacle.
- Repeat the same procedure for the following module if 2 small modules are to be used.

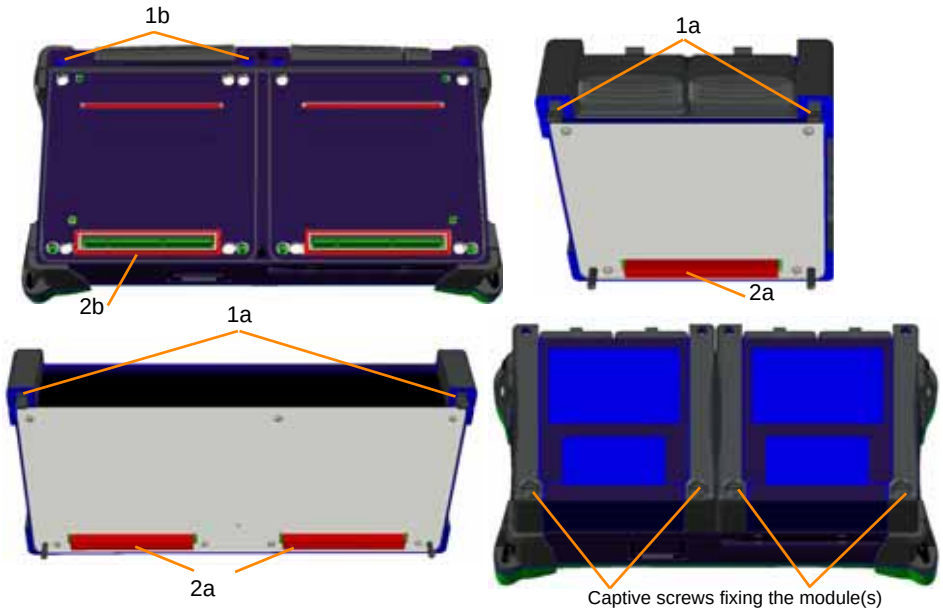


Fig. 3 Fixing the module to the base

Removing a module

- 1 Unscrew the two captive fixing screws of the plug-in completely (up to the stop).
- 2 Remove the two slots of the module from their housing onto the base.
- 3 Carefully slide the plug-in out of its slot.

Choosing the position of the instrument on the work surface

Depending on the conditions of use of the 4000 Platform, the instrument may be placed on a flat surface or held in the hand.

When used on a work surface, the 4000 Platform should be supported on its stand, which can be set in either of two positions, depending on whether the user is standing or sitting.

To change the stand from “seated user” position to “standing user” position, pull the stand towards you to unlock it from its housing.



Fig. 4 Stay in positions for seated user and standing user



The stand can be used only when one big module or two smalls is / are set under the base.

Setting the 4000 Platform into the glove

The glove for the 4000 Platform is furnished on standard with the instrument.

This glove has been designed to fit to the equipment, and to easily get access to all the commands of the product (interface, modules, connectors).

To set the 4000 Platform in the glove, take care of the sense of insertion: the screen must face the front of the glove.

Refer to [Figure 5](#).

Once in the glove, the 4000 Platform can be set to the «standing» position, using the stay on the back of the glove.



Fig. 5 Platform View in the glove

Battery management¹

The battery supplied with the 4000 Platform must be fully charged before use.

A **Lithium Ion type** battery, 6 cells or 9 cells, is installed in the battery compartment.

Charging the battery Connecting the mains adapter



Use only the mains adapter supplied with the 4000 Platform. The adapter for some other electronic device may appear to be identical, but entails a risk of damage to the 4000 Platform.

- At the top of the 4000 Platform, lift up the power supply socket protector and plug in the mains adapter.
- Connect the adapter to the mains. The **On** indicator lamp starts to blink in green.

¹.if the 4000 Platform is equipped with a battery.

Charging

If the instrument is fitted with a battery, on connection to the mains:

- if the user does not press **ON**, the battery will start the charge. In this case, the **Charge** indicator will be lit in red.
- when the user presses the **ON** key, the instrument starts up and the battery will charge during use (**Charge** indicator in solid red).

Once the battery is fully charged, the **Charge** indicator lamp is solid green.

When the Charge indicator is blinking red, this mean the power supply is not compatible with the battery used. Charge is disabled.



It is essential to wait until charging is complete to ensure maximum independent operating time, which may otherwise be considerably reduced.

Voltage must be superior to 14V to correctly charge the 9 cells battery (11V).

Only the 6 cells battery can be charged using the cigarette lighter adapter (provided on option). When this adapter is used with a 9 cells battery, the equipment can be used but the battery will not be charged (except if the vehicle is started).

Battery charging time

If the battery is completely discharged, the time taken to recharge is:

- approximately 5.5 hours, if the apparatus is not in use (**Charge** indicator blinking red)
- about 12 hours if the instrument is used during charging (**Charge** indicator lit in solid red).

Battery endurance

A 6 cells battery is only guaranteed to deliver 20W and a 9 cells battery 30W, at ambient temperature. During discharge, battery increases its temperature.

Above 20W/30W at ambient temperature, the message **Battery too hot, please turn power off** may be displayed on the screen, inviting the user to shut off the equipment.

The user may or may not shutt off the product but the product may shut off later by itself, without warning.

The following specifications are given for a MTS 4000 with one Lilon Battery, at 25°C, at full battery capacity (6.6 A.h), with one RLM OTDR module and without any options:

Conditions of use	Endurance	
	6 cells battery (7400 mV)	9 cells battery (11100 mV)
According to Telcordia GR-196-CORE recommendation: Normal conditions, with normal backlight, 3 acquisition of 30 seconds per quarter of hour, auto off	up to 7 hours	up to 11 hours.
Under continuous acquisition, with high screen backlight	Up to 3h15	Up to 5h15

Charge and On indicators

- **On** blinking green: the instrument is switched off but connected to an external power source.
- **On** solid green: the instrument is operating, either on batteries or an external power source.
- **Charge** solid red: the instrument is connected to an external power source and the battery is on charge.
- **Charge** solid green: the instrument is connected to an external power source and the battery is fully charged.
- **Charge** blinking red: the supply is not compatible with the battery used.

Battery charge level display

When the battery is installed in the instrument, its charge level is displayed in the top right-hand corner of the screen and also as a charge percentage. Example: 80% .



It is essential to wait until charging is complete for maximum battery endurance, otherwise this may be considerably reduced and the level of charge may not be correctly displayed.

- When the battery charge level drops below 10%, a warning is displayed next to the icon. Example: 4% . When the level becomes too low, the instrument switches off automatically after saving the current configuration.

In the table below is a summary of the battery icon according to the charge level:

Table 1 Color of the battery Icon according to charge level

Icon	Charge level
80% 	From 100% to 70%
68% 	From 70% to 40%
28% 	From 40% to 10%
4% 	From 10% to 0%

Access to the battery

- Switch off the instrument and disconnect the mains supply.
- On the left side of the equipment, loosen the captive screws (a) at both sides using a Philips head screwdriver.
- Remove the battery door, pulling with the help of the screws
- Pull the battery to disconnect it from the base, taking care not to damage the connector into which it is plugged.

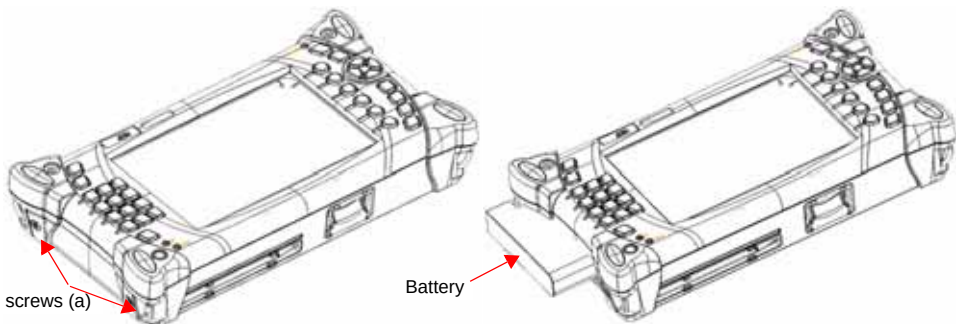


Fig. 6 Battery seatings

When putting the battery back into its seating, make sure that its connector engages correctly with the one of the base.



Make sure that the connector of the battery engages properly with the one of the base. Tighten the screws, as securing the battery by the connector alone will not ensure uninterrupted operation.

Safety recommendations

The Lithium Ion battery is designed for maximum safety. In particular, each cell is provided with a safety valve to prevent excessive internal pressure in the event of overcharging or exposure to very high temperatures.



Use only the battery supplied with the 4000 Platform. Batteries supplied with other electronic devices may appear to be identical, but entail a risk of damage to the 4000 Platform.

If you do not intend to use the platform for several weeks, it is advisable to remove the battery in order to prolong its useful life, and to recharge it fully before using it again.

In case of communication problems with the battery, informed to the user, the battery charging information is no more actualized.

Restart the equipment to restore the communication with battery.

Switching the 4000 Platform on and off

The mains adapter is used not only for charging the battery (if the battery is installed), but also for operating the 4000 Platform on the mains, if a mains socket is at hand, to save the battery.

Switching on the 4000 Platform

Switching on using the battery

- Press the **ON/OFF** key. The **On** indicator pass from blinking to solid green.

The JDSU logo appears on the screen briefly, then an autotest is carried out, the software is installed (this just takes a few seconds), then the screen goes dark for about three seconds.

Then, the **Help** screen appears (see "[Presentation page of the 4000 Platform](#)" page 19).

The equipment is ready to be used once the **Home** page is displayed, or once the **result** page of the function selected before the Platform has been switched off and restart is displayed..

Mains operation

If the instrument is to operate on the mains:

- lift the protective cover over the power supply socket on the upper part of the 4000 Platform (upper left side, with the icon ) and plug in the mains adapter.
- press the **On** key (if this is not done, and the instrument is equipped with a battery, it will switch over to charging of the battery).

The JDSU logo shows briefly and is followed by an autotest, the software is installed (this just takes a few seconds), then the screen goes dark for about three seconds.

Then, the **Help** screen appears.

Finally, the equipment is ready to be used once the **Home** page is displayed, or once the **result** page of the function selected before the Platform has been switched off and restart is displayed.

NOTE

It is possible to switch over from battery to mains operation, or vice versa, without loss of data.



The module cannot be swapped when the unit is ON or AC powered



In the event of an unexpected mains power cut, if there is no battery, the current results and configuration will not be saved. Next time the instrument is switched on, it will return to its initial configuration.

**Switching off
the 4000
Platform**

While the 4000 Platform is operating, press the **On/OFF** button to switch it off.



Disconnect the jack connector of the AC/DC power supply before disconnecting the AC/DC mains

NOTE

When the instrument is switched off using the **ON/OFF** button, current results and configuration are saved. Next time the **ON/OFF** key is pressed, they are recalled.

Reset

If the 4000 Platform freezes, prolonged pressure (about 4 s.) on the **ON/OFF** key will reset the instrument.

Presentation page of the 4000 Platform

The presentation page of the instrument is called up by pressing the **HOME** button, followed by **Help**. It also appears when the instrument is switched on.

This page shows:

- 1 the version of the softwares installed in the instrument,
- 2 the base options; base reference, Power Meter, Bluetooth, touch-screen, extension memory, battery reference...and the date of calibration for concerned options. The options set into the base are marked with a green tick.
- 3 the modules installed (including serial number and date of last calibration).

NOTE

The first module in the page corresponds to the module on the left side of the Platform, when you face screen.



Fig. 7 Example of presentation screen

The **SOFTWARE OPTIONS** key allows to reach a screen in which the software options can be visualized (ask your local agent JDSU to get information about softwares options available).

The **SERVICES DATA** key allows to display information about the services available: CPU, memory, hardware revision, screen reference, packages...

Troubleshooting

Troubleshooting	Solution
Nothing happens when the ON/OFF key is pressed.	Make sure that the battery is present or the mains adapter is properly connected.
You are using the 4000 Platform in the ordinary way when it suddenly switches off.	The parameters of the instrument may have been set so that it switches off automatically after a predefined time of inactivity to save the battery. Work in progress is first saved in the memory. See ."Screen saver" page 48 Otherwise, check the battery charge level.

Troubleshooting	Solution
The battery refuses to charge (the Charge indicator does not go on when the instrument is connected to the mains and is not operating).	There is no battery in the instrument.

Controls of the 4000 Platform

3

This chapter describes the controls of the 4000 Platform.

The topics discussed in this chapter are as follows:

- “Control interface” on page 24
- “Using an external keyboard, mouse and touchscreen (options)” on page 28
- “Editing” on page 30
- “Accessing the 4000 Platform from a PC” on page 34
- “Connectors” on page 39



The 4000 Platform is a multi-tasking instrument: the user can simultaneously carry out an acquisition, modify the configuration parameters, print out results and access the directory of the internal memory. In some cases, it is even possible to perform several measurement operations at the same time, but only the result of the function selected can be displayed.

Control interface

The Interface module of the 4000 Platform embodies the controls and display needed for measurement analysis:

- the display screen, with the associated menu keys on the right.
- the **ON/OFF** button and the operating and battery charging indicators.
- the general control buttons: **CANCEL / FILE / SETUP/ HOME / RESULTS**
- the measurement control key: **START/STOP**
- the **Test** indicator (lit during a measurement)
- direction keys for scrolling through the menus
- a numeric keypad on the left
- the validation key **ENTER**.
- the key **AUTO** which calls up the **Macro** function
- the **SHIFT** key  to use the shortcuts (displayed next to some keys on the numeric keypad).

 + 3: rise luminosity /  + 6: decrease luminosity

 + 9: rise sound /  + #: decrease sound

 + **HOME**: full scale (in trace display mode)

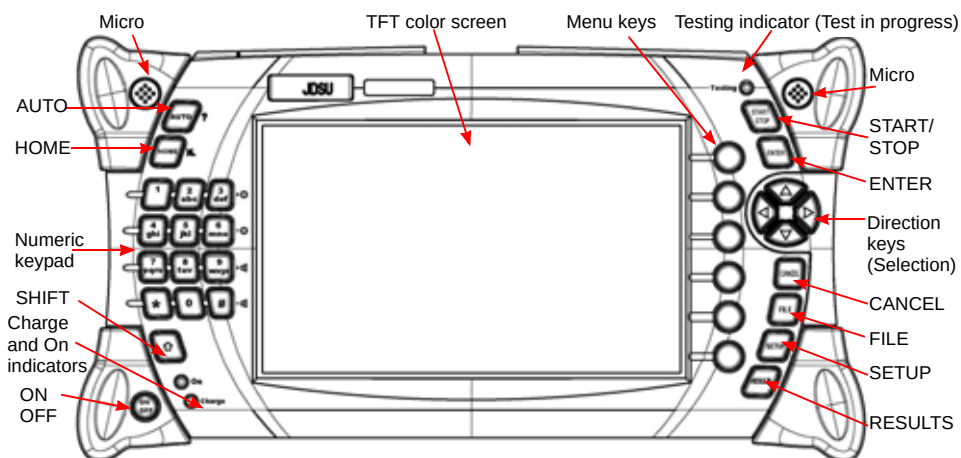


Fig. 8 Controls of the Interface module

NOTE

The **Print** function is available by pushing simultaneously the left and right direction keys.

TFT display screen

The 4000 Platform has a large, 7 inch TFT color screen, with a resolution of 800 x 480, back-lit:

- either a high visibility TFT screen, for high visibility outdoors and indoors.
- or the high visibility screen supplied may also be a touch screen (option).

The different zones of the screen

The display is divided into 3 zones:

- 1 the central zone, displaying the configuration or the results of measurements.
- 2 at the top, in the status bar, in the form of icons:
 - a different icon according to the type of application and / or the name of this function (example:  Home ,  File Explorer ...)
 - if visual fault location (VFL) is activated, the icon 
 - if data saving is in progress, the icon 
 - if the VNC function is used, the icon 
 - if a battery is set in the Platform, the icon and the battery charge level  (see "[Battery charge level display](#)" page 15).
 - if a USB stick is connected, the icon 
 - if a printing process is in progress, the icon 
 - if the Web Browser application is active, the icon 
 - if the PDF viewer is activated, the icon 
 - current date and time.
- 3 at the right side, rigid function keys (or tactile on option).

Control buttons

The buttons below the screen provide the following functions:

ON OFF

Main on/off switch

HOME

This button gives access to:

- selection of the different measurement or base functions
- the configuration menus of the instrument (choice of module(s) used), When the instrument is switched off, its configuration is stored in the memory, as are the measurement results.
- the configuration menus of the system (screen, date, language, print-out, etc.). Once you have pressed the **System Settings** key, you can select:
 - the display parameters: screen illumination, automatic shut-down.
 - the parameters specific to the country of use: date, time, format of date/time, language.
 - the input/output parameters: optical switch, Ethernet, e-mail configuration.
 - the audio parameters (Headset / Hands-free function)
 - the initialization of automatic shutdown of the instrument.

For a complete description, see ["System set-up" page 41](#).

NOTE

The configuration menus can be displayed, and modified if required during acquisition or measurement.

SETUP

This button calls up the measurement configuration menu. This menu depends on the function in use.

RESULTS

This button calls up the results page (e.g. with OTDR module: reflectometry trace, results and table of results) and is used to analyze results.

FILE

This button calls up the file and directory management menu.

It allows to:

- to choose the storage medium: internal memory, USB memory key, extended internal memory; file name and format; information relating to the data stored in the file.
- to store files or retrieve them for selection, copying or deletion; with facilities for classifying them in directories and sub-directories.

START/STOP

Starts and stops the measurement.

NOTE

All these functions, except **HOME**, depend on the modules used and the measurements made: refer to the user manuals of the corresponding modules of the 4000 Platform.

AUTO

This button allows to launch the Script function. This can only be activated if a module is set onto the 4000 Platform.

CANCEL

This button allows to deselect a function on the Home page, or to quit the edition/numeric keypad without validating the modifications.

Numeric keypad on the 4000 Platform

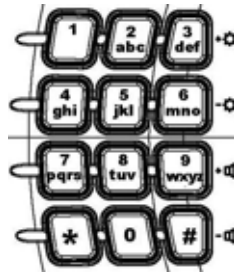


Fig. 9 Numeric keypad of the Platform

The numeric keypad is very useful to quickly enter numerical values but also letters when the edition or numeric keypad is displayed on the screen (see ["Editing" on page 30](#)).

The numeric keypad on the Platform works like the numeric keypad displayed on the screen: push on a number to display it.

The numeric keypad of the Platform can also be used when the edition keypad is displayed on the Platform screen.

- To enter exclusively numbers, select **123...** with the key  and type the number(s) wished to display it/them.
- To enter letters and numbers, select **abc2...** with the key  and type as many times as necessary on a key of the numeric keypad of the Platform to insert the character wished.

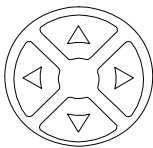
For example, to enter the letter «o», push three times the button «6». If you click one again, you will display the number «6».

- Some specific characters (e.g. @, /...) can be entered using specific keys from the Platform keypad:

Key pressed	Character displayed one after the other
1	. , - ? ! " @ : / 1
0	space 0

Indicators On	blinking green: the instrument, though connected to an external power source, is switched off. solid green: the instrument is operating, either by battery or on an external power supply.
Charge	solid green: the instrument is connected to an external power source and the battery is fully charged. solid red: the instrument is connected to an external power source, and the battery is on charge.
Testing	blinking red: at least one function is in measurement phase (for example, the laser emission pilot for an OTDR measurement).

Direction keys The direction keys have two principal functions:



- on the Results page, they are used to move the cursors or modify the zoom factor.
- on the set-up pages, they are used to scroll through the menus, the **ENTER** key serving to select or confirm the parameter chosen.

Using an external keyboard, mouse and touchscreen (options)

The external keyboard facilitates input of:

- alphanumerical configuration parameters
- comments in the File menu
- editing characters

The mouse can be used instead of the direction keys to scroll through menus and make a selection.

Connect the keyboard and mouse to the USB connectors.

Virtual control buttons bar

It is possible to emulate hard keys with Virtual Control buttons

To display these buttons, click once on the top of the screen in the status bar, at the same height than the date and time.



Fig. 10 Virtual control buttons bar

The virtual control buttons bar is displayed during a few seconds. You may click on any of these buttons to obtain exactly the same results than using the real buttons in the front panel of the 4000 Platform.



The printing function is available in this bar, whereas no softkey exists for this function on the platform.

NOTE

This virtual control buttons bar is especially useful when the 4000 Platform screen is exported on a remote PC (see ["Transfer of the interface of the 4000 Platform on to a PC" page 36](#)).

Equivalence between external keyboard and 4000 Platform

Although it is intended primarily to replace the Edit menu of the 4000 Platform, the external keyboard can replace all the buttons and keys of the 4000 Platform except the **ON/OFF** button:

- The menu keys to the right of the screen are replaced by the function keys **F1** to **F6**.
- The buttons below the screen are equivalent to **Ctrl** + a letter (see table below).
- The direction keys have the same function on the external keyboard and on the 4000 Platform.

Function on the 4000 Platform	External keyboard
HOME	Ctrl + H
SYSTEM SETTINGS	F12
SET-UP	Ctrl + U
FILE	Ctrl + F
RESULTS	Ctrl + R
START/STOP	Ctrl + S

Function on the 4000 Platform	External keyboard
SCRIPT (Macro) ^a	Ctrl + M
PRINT	Ctrl + P ^b
◀ ▶ ▶ ▼	← ↑ → ↓
Menu keys 1 to 6 (from top to bottom)	F1 → F6
ABOUT	F11
Save and quit (Exit)	Entrée/Enter
Quit without saving (Abort)	Escape/Echap.

- a. The Macro function is called on the 4000 Platform using the **AUTO** key
- b. The Print function is available directly on the 4000 Platform pushing simultaneously the left and right arrow keys.

**Editing text
using the
external
keyboard**

To use the external keyboard to insert a name or identification in the set-up menus, or a Note in the table of results:

- 1 Press **Enter** to go into the Edit menu
- 2 Type the text
- 3 Press **Enter** to leave the Edit menu.

Pressing the **Esc** key close the Edit menu without saving the text.

Editing¹

In the set-up menus, it is sometimes necessary to enter alphanumerical information for names of files or results or for comments.

To call up the Edit menu, select the name to be modified, then press the ► key. The Edit menu will appear.

This menu can be used to simulate a keyboard: it displays available characters and function keys. Some Edit menus may include keys specific to the current function.

1.If an external keyboard is used, see ["Using an external keyboard, mouse and touchscreen \(options\)"](#) page 28

The name to be modified is displayed above the keyboard. The cursor can be moved about over the name to be modified and the characters available, using the direction keys or a mouse or an external keyboard: see ["Using an external keyboard, mouse and touchscreen \(options\)"](#) page 28.

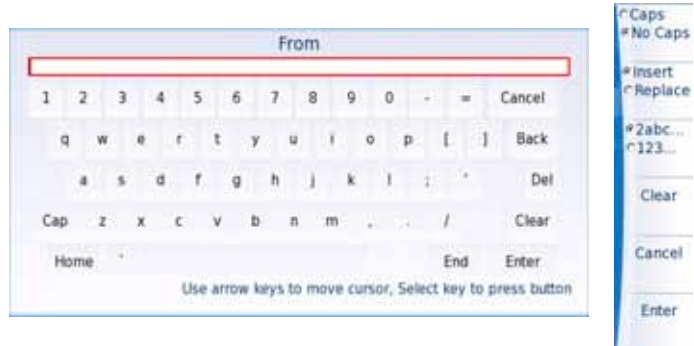


Fig. 11 Example of Edit menu

- The **Caps/No Caps** key enables the keyboard to type either upper case letters or lower case letters and figures (as well as punctuation marks and certain special characters).
- The **Insert/ Replace** key selects the action which will be performed by the confirm key **ENTER**: either insertion of the character selected by the position of the cursor, or replacement of the highlighted character, by the character selected.
- The **2abc...** key allows to use the numeric keypad to enter numbers and letters. The **123...** key allows to enter exclusively numerical values using the numeric keypad.
- Using the keyboard, with the cursor positioned on the name:
 - confirming **DEL** deletes the character after the cursor;
 - confirming **CLEAR** deletes all characters from the edit line;
 - confirming **BACK** deletes the character before the cursor;
 - confirming Cancel will close the edition menu without applying the modifications
 - confirming **HOME** moves the cursor to the beginning of the word;
 - confirming **END** moves the cursor to the end of the word.
- The **Enter** key saves the name that has been entered and quits the Edit menu.

- The **Cancel** key quits the Edit menu without saving any changes that may have been made.

To enter text:

- Press the **Caps/No Caps** key, depending on the case of the character to be entered.

Without Touch Screen	Using Touch Screen
- Using the direction keys, move the cursor onto the first character required. - Press the ENTER validation key. The character will appear in the upper box. - Repeat the process for the remaining characters.	- Directly click onto the character you want. The character will appear in the upper box. - Repeat the process for the remaining characters.

To delete characters in a text:

Without Touch Screen	Using Touch Screen
- Go into Replace mode and move the cursor on to the character to be deleted. - Move the cursor on to Back (or Del) and press the ENTER validation key. Repeatedly pressing this same key will delete the preceding (or following) characters.	- Go into Replace mode and position the cursor on to the character to delete. - Click on the Back touch (or Del) Repeatedly clicking on this same key will delete the preceding (or following) characters

To insert characters in a text:

Without Touch Screen	Using Touch Screen
- Go into Insert mode and place the cursor on the name at the insertion point.	- Go into Insert mode and place the cursor on the name at the insertion point.
- Using the direction keys, move the cursor on to the first character to be inserted.	- Directly click on the character you want
- Press the ENTER validation key.	Repeat the process for the other characters to be inserted.
Repeat the process for the other characters to be inserted.	

Quitting the Edit menu

- Press the **Cancel** key to quit without saving the action performed (onto the keyboard or on the screen).
- Press the **Enter** key to quit the menu while saving the text entered (onto the keyboard or on the screen).

Numeric Keypad For some configuration parameters, you will have to enter numeric values. The direction keys of the 4000 Platform can be used. However, the user can also use the numeric keypad, displayed when the **Edit Number** key is pressed.

Click on **EDIT NUMBER** to display the Numeric Keypad.



Fig. 12 Example of Numeric Keypad

The keys **Min** and **Max** are displayed when the parameter has a minimum and maximum value (for example, for the screen lighting level, pressing the **Min** key will display the value -5 and pressing the **Max** key will display the value +5).

- The direction keys  allow to increment of +/-1 the selected value.
- The direction keys   allow to select the previous or the next figure.
- **Clear** key: delete all the displayed value (same function as the Clear key of the screen)
- **Cancel** key: quits the Edit Number menu without saving any changes that may have been made (same function as the Cancel key of the screen)
- **Enter** key: saves the name that has been entered and quits the Edit Number menu (same function as the **ENTER** key of the screen).

Modifying / Changing a value with the numeric keypad

When the Edit Number menu is opened, the first figure of the value is selected.

Without Touch Screen	Using Touch Screen
- Move the cursor to the first number to be inserted.	- Directly click on the number to be inserted
- Press the ENTER validation key.	Repeat the process for the other characters to be inserted.
Repeat the process for the other characters to be inserted.	

Accessing the 4000 Platform from a PC

The 4000 Platform can be connected to a PC in order to:

- remote the screen of the 4000 Platform on to the PC and issue commands from the keyboard of the PC
- access the internal memory of the 4000 Platform from the PC and transfer files from the 4000 Platform to the PC and vice versa.

**Connecting the
4000 Platform
to a PC**

NOTE

The Ethernet card of the equipment connected to the 4000 Platform must be configured to the Auto-detect mode (Auto negotiation).

- Direct connection**
- 1 On the PC:** find the IP address and the mask of the PC's sub-network:
 - With Windows 98 or Millenium: Select **Start > Execute**, then enter winipcfg² and click on **OK**.
 - With Windows NT, 2000, XP or Vista: select **Start > Programs > Accessories > Dos Prompt**, type ipconfig¹, then **Enter**.
Note the IP address and the mask of the PC's sub-network.
 - 2 On the 4000 Platform:**
In the system set-up menu, under **I/O interface > Ethernet**, enter:
 - an IP identical to that of the PC +/- 1; for example, 10 . 10 . 50 . 204 if the address of the PC is 10 . 10 . 50 . 203.
 - the IP mask of the PC,
 - an IP gateway resembling the IP address, for example, ending with the character 1.
 - 3** Connect the RJ 45 connector of the 4000 Platform to that of the PC with a crossover Ethernet cable.
 - 4** Wait for about ten seconds while the connection is established.
 - 5** On the PC, make sure that the connection is operational by selecting **Start > Execute...** and typing ping followed by the address of the 4000 Platform.

- Connection via a local network**
- 1 On the PC:** find the IP address and the mask of the PC's sub-network:
 - With Windows 98 or Millenium: Select **Start > Execute**, then enter winipcfg³ and click on **OK**.
 - With Windows NT, 2000, XP or Vista: select **Start > Programs > Accessories > Dos Prompt**, type ipconfig", then **Enter**.
Note the IP address and the mask of the PC's sub-network.
 - 2** Plug the RJ 45 connector of the 4000 Platform into a hub or Ethernet switch with a straight-through Ethernet cable
 - 3 On the 4000 Platform:**
In the system set-up menu, under **I/O interface > Ethernet**, enter the IP address, the IP mask of the PC and the IP gateway communicated to you by the network manager; or, on his recommendation, use dynamic attribution mode (DHCP). In this case, the address of the 4000 Platform (10 . 10 . 50 . 204 in the example) is displayed but cannot be altered.

2.The character _ corresponds to a space.

3.The character _ corresponds to a space.

- 4 Wait for about ten seconds while the connection is established.
- 5 On the PC, make sure that the connection is operational by selecting **Start > Execute...** and typing `ping` followed by the address of the 4000 Platform.

Transfer of the interface of the 4000 Platform on to a PC

- 1 Make the 4000 Platform / PC connection as described above.
- 2 **On the 4000 Platform** in the system set-up menu, under I/O interface, confirm **Remote screen = Session / Permanent / Permanent with password** (for more information, see ["Remote screen" page 49](#)).
- 3 **On the PC**, go into Internet Explorer and type the address:
`http://10.10.50.204:5800`
if `10.10.50.204` is the IP address of the 4000 Platform that was defined when the connection was set up.

A VNC window will open demanding a password: press **Enter** without typing any password.



For an intensive use of the deport screen or when it is used via a WAN network, it is strongly recommended to use a dedicated VNC client. The VNC clients recommended are Tight VNC (V 1.2.9) and Real VNC (V 4.1.1).

The screen of your 4000 Platform will then appear offset on to your PC. You can use the keyboard and mouse of the PC to control the 4000 Platform: see ["Using an external keyboard, mouse and touchscreen \(options\)" page 28](#), for the command equivalents between the controls of the 4000 Platform and those of the PC keyboard and mouse.

Moreover, via the VNC window, you can launch a reboot of the Platform, typing `Ctrl + Q` on the PC keyboard and validating.

Accessing the internal memory or the USB memory stick of the 4000 Platform via a PC

It is possible, from a PC, to access the internal memory of the 4000 Platform or to the USB memory stick connected to the Platform by means of the FTP server of the 4000 Platform.

FTP access is obtained through the user account `<fttx>` (password: `fttx`).

- 1 Make the 4000 Platform / PC connection as described above.
- 2 On the PC, use either an FTP client or Internet Explorer.
- 3 In Internet Explorer, type the following address (`10.10.50.204`, which is the IP address of the 4000 Platform that was defined when the connection was set up):

`ftp://fttx:fttx@10.10.50.204/disk/`

This allows to access to internal memory.

`ftp://fttx:fttx@10.10.50.204/extmem/`

This allows to access to extended internal memory (option).

`ftp://fttx:fttx@10.10.50.204/usbflash/`

This allows to access to the contents of the USB memory stick connected to the 4000 Platform.



If you use Internet Explorer 7, the following adress must be entered:

`ftp://fttx:fttx@10.10.50.204/acterna/user/disk` or

`ftp://fttx:fttx@10.10.50.204/acterna/user/extmem` or

`ftp://fttx:fttx@10.10.50.204/acterna/user/usbflash`

The PC then displays the contents of the internal memory, of the internal extended memory or of the USB memory stick of the 4000 Platform.

Creating a shortcut toward the 4000 Platform internal memory

You can add on your PC, a direct connection to the internal memory of the 4000 Platform, creating a shortcut in the network place, in the Explorer.

To create a network place, do as follows:

- 1 Open the Explorer on your PC
- 2 Double click on **Add Network Place**

The Wizard for the Network Place installation opens



Fig. 13 First page of the installation

- 3 Click on **Next**

- 4 In the dialog box, click on  **Choose another network location**, then on **Next**

- 5 In the following dialog box, type the following address
(10.10.50.204, being the IP address of the 4000 Platform defined during connection):
ftp://fttx:fttx@10.10.50.204/disk
(access to internal disk of the 4000 Platform)



Fig. 14 Entering the ftp address

NOTE

You can access to the internal extended memory (option) or to the USB memory stick connected to the 4000 Platform typing respectively extmem or usbflash instead of disk.

- 6 Click on **Next**
- 7 Enter a name for this Network Place



Fig. 15 Name of the Network Place

- 8 Click on **Next**
The PC is searching for the connection
- 9 The last dialog box inform you the network place has been successfully created, and will be open once you click on **Finish**.
Deselect this parameter if the internal memory of the 4000 Platform must not be opened on the PC.



Fig. 16 Completion of the Network Place installation

In the Explorer > Network Place, the new shortcut is displayed, with the name applied on [step 7](#).



Fig. 17 Network Place created

Connectors

Upper panel The upper panel contains, from left to right, the following elements (see example below):

- the connection socket for the mains adapter providing the 15 V power supply and used to charge the battery,
- the RJ 45 connector for the Ethernet interface,
- the headset plug-in
- the 2 USB connectors for printer, mouse, keyboard, USB memory stick...



USB memory sticks can be very different.

They differ on Hw and Sw aspects, even inside a given brand.

In particular, USB memory sticks targeting audio recording are often formatted in very specific ways and the format is often very different from a standard FAT.

For all these reasons, we advise users to use memory sticks provided by JDSU.

In any case, USB memory sticks which are recognized by the 4000 Platform (a sound is generated when plugged on the 4000 Platform) but which cannot be read or written, **should be formatted on the 4000 Platform** with the Usbflash Format utility, in **Expert tools > Media utilities**.

If a problem occurs with the USB stick you are using, contact your Local Technical Assistance Center.

- the powermeter plug-in if the option is available
- if the VFL option is present, the corresponding output
- the internal memory extension, which is delivered on option and cannot be reached by the user

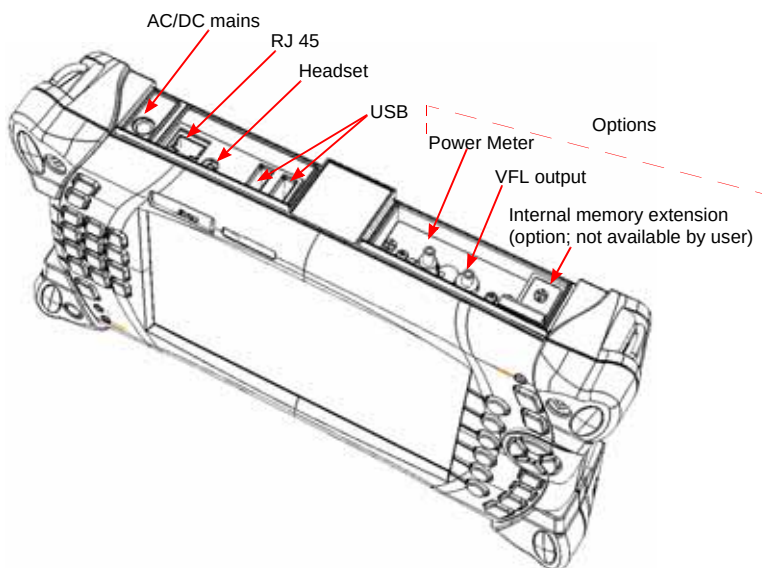


Fig. 18 Example of rear panel

System set-up

4

This chapter describes the operations for configuring the instrument (choosing the module or function to be used) and the system (date, language, input/output, etc.).

The topics discussed in this chapter are as follows:

- [“Principle of the set-up menus” on page 42](#)
- [“Configuring the instrument” on page 42](#)
- [“Configuring the system” on page 45](#)
- [“Standalone results” on page 55](#)
- [“Expert Tools” on page 55](#)

The procedures described below usually use the direction keys. When the instrument is equipped with a mouse or/and a touch screen:

- the user must adapt the text to the option used; which means that for touch screen and mouse, the user must directly click on the desired field.
 - to edit a string of characters, the ► key of the 4000 Platform must sometimes be used.
-

Principle of the set-up menus

A set-up can be displayed or modified while an acquisition or measurement is in progress. The parameters that cannot be modified are greyed out. The menu thus gives all the possible options.

- To move from one parameter to another, use the direction keys ▲ and ▼. When a parameter is selected, its possible values are shown to the right of the parameter.
- To modify the value of a parameter, use the direction keys ◀ and ▶ to highlight the option selected.
- To leave a set-up menu the user can press any of the keys below the screen or the menu key **Exit**.

Configuring the instrument

Since the instrument can be equipped with a range of modules and plugins, a variety of functions are possible. Before carrying out a particular measurement, it is therefore necessary to select the function or functions required for it

If a module has been changed, the instrument configuration menu will automatically be displayed as soon as the power is switched on.

The functions of Reflectometry, Visible Source (VFL), Power Measurement (Radiometry) are not mutually exclusive: several functions can be active at once.

To configure the instrument, proceed as follows:

- Press the **HOME** button.

The functions available on the instrument are represented graphically by icons.



Fig. 19 Example of instrument configuration

To validate a function:

- Move on to the icon representing the function to be validated using the direction keys (or the mouse or external keyboard if the corresponding option is present).

NOTE

You can also use the numeric keypad of the base, selecting the number displayed for each function.

- Press the **ENTER** validation key to confirm the selection. The icon turns yellow and is outlined with a white frame.

**Validating
several
simultaneous
functions**

It is possible to validate several distinct functions, whether or not they are elements of the same application. Thus it is possible, for example, to activate the microscope function at the same time as the OTDR function by validating each of them.

When several functions are validated, pressing the keyboard keys (**SETUP**, **FILE**, **RESULTS**, **START/STOP**) will give access to the function in focus (in yellow).

To change from one function to another:

- If the functions are elements of the same application (for example,

- Optical Fibres), simply change tabs (refer to the manual corresponding to the application).
- If the functions are not elements of the same application (for example, to change over from the OTDR function to the VFL function), return to the instrument configuration screen shown here and place the focus on the VFL function. The actions of the keyboard keys will then indeed be those corresponding to the VFL function.

Help The **Help** Page from the **HOME** menu display the Getting Started manual contents, in a web page (in english).

About The **About** page allows to display the presentation screen, with all the information concerning the softwares versions, the hardware options and the module installed (see [Figure 7 on page 20](#)).

Once this page is displayed, you can click on the **Software Options** key to visualize the software options available on the 4000 Platform, ordered according to specific categories (Copper, DSL, Ethernet, OTDR ...). Use the direction keys to scroll through the options available



Fig. 20 Software Options page

In this **About** page, you can also click on **Services Data** key, which allow to display information about the elements inside the Platform (CPU, Memory, hardware revision, screen reference...).



Fig. 21 Services Data page

Configuring the system

When the 4000 Platform is to be used for the first time, or before a measurement campaign is started, the parameters of the system must be configured:

- the parameters specific to the 4000 Platform (screen lighting level, automatic shutdown).
- the parameters specific to the country of use: language, date, time, display format of date and time.
- parameters of input/output.
- audio parameters (heaset / hands-free) and regulation of sound level
- programming of automatic shutdown (during battery operation).
- IP adress for upgrading via the network
- parameters for printing

To call up this configuration menu, press the **HOME** button, then **System Settings**.

NOTE

The key **FACTORY DEFAULT** allows to reinitialize the configuration set in factory, in case of error during the new configuration.



Fig. 22 System configuration screen

Factory Default Screen Configuration

- Darklight: +0
- Contrast: Indoor
- Screen Saver: No

I/O Interface

- Remote Screen: No
- Ethernet: Config. 1 / Security: Standard
- File Export: None

Country

- Language: English
- Date Format: dd/mm/yyyy
- Time Format: 24 hour clock

Audio

- Hands-free: Off
- Headset: Off

Utility

- VFL Mode: 1Hz
- Auto off: 30 minutes (only on battery operation)
- Upgrade Parameters: Server address: 172.16.27.18 / Use proxy: No / Upgrade Protocol; none
- Home Selection: Multiple

Printer

- Printer : None

Screen Choosing screen lighting level

In the **Screen** window, move the cursor on to **Lighting**.

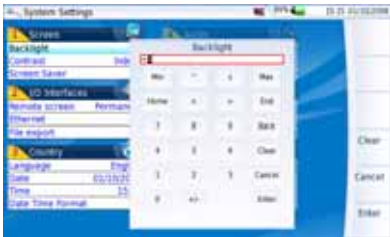
- use the direction keys → or ←, to choose the desired lighting level (between -5 and +5).
- or
- click on **Edit Number** to enter the screen lighting level on the numeric keypad



If the 4000 Platform is operating on battery, it is advisable to choose a minimum lighting level acceptable for the user, to keep endurance as long as possible.

Contrast

- Indoor: to be selected when the instrument is used inside
- Outdoor: to be selected in order to optimize the readability of the screen for an outside use.
- Dark: the screen is displayed with dark color, and white background when the instrument is used outside.



Example of Inside contrast



Example of Outside contrast



Exemple of Dark contrast

Fig. 23 Contrast configuration

Screen saver

This feature is available both when battery powered or AC powered. Its purpose is to extend the life of the screen, in case the 4000 Platform is not used for some time. Instead of the normal screen, a small animated picture is displayed on the blackened screen, eventually followed from time to time by a name and phone number (if configured by the user).



To configure this feature, select **Screen Saver**.

A sub-menu is displayed :

Screen saver	60s, 3 min, 5 min, No. No: disables the screen saver. Other values indicate time of inactivity before the screen saver automatically starts. If the screen saver is enabled (a time is set), the following two lines are proposed.
Name	A name or comment may be entered. This name or comment may be useful to persons who find the 4000 Platform in the screen saver mode. Information such as who currently uses the apparatus, where to find the person or any other commercial information may be entered.
Phone number	A phone number or other comment may also be added in order to provide more information : number to call in case of emergency, user telephone number...

Country Choosing language (Language)

Select one of the languages offered, using the direction keys → or ← .

NOTE
The **ENGLISH CAPS** parameter allows to get a display in English, with all words in capitals.

Resetting the date

Change the date by using the direction keys → or ← .

Resetting the time

– Use the direction keys → or ← to change the minutes and hours.

Choosing date and time format

Choose one of the options: dd/mm/yy or mm/dd/yy for the date format.

Use the direction keys → or ← to change the hour format (12 hour clock / 24 hour clock).

I/O Interface Remote screen

It is possible to remote the screen of the 4000 Platform on to a PC and to read the contents of the disk of the 4000 Platform on a PC. To do this, see ["Accessing the 4000 Platform from a PC" page 34](#)

Remote screen = Session or Permanent or Permanent with Password must be confirmed in both cases, in the Interface E/S window.

Session Mode	the remote screen function is inactive once the 4000 Platform is switched off.
Permanent Mode	the remote screen function is still active when the 4000 Platform is switched off and restarted.
Permanent with Password	same function as the Permanent mode, with an access to the equipment via VNC protected by a password: 42000
No	the screen cannot be remote on a PC.

NOTE

When the equipment is in the Remote screen mode, the icon  is displayed at the bottom of the screen.

Ethernet

Parameters of the local Ethernet network to which the 4000 Platform is connected:

Mode - Config 1 to 4	static mode enabling input of the configuration of 4 sites.
- Dynamic	in this mode, which requires a DHCP server, the 4000 Platform requests an IP address from this server which will be allocated dynamically if dynamic host configuration is activated on the local network. After selecting this mode or after power-on, the 4000 Platform tries to establish a connection to obtain an address from a DHCP server. If for any

	reason, this process fails, the 4000 Platform reverses to static IP address mode with User1 IP address.
Site Name	the user can enter the name of the site in the Edit menu.
IP Address	IP address of the 4000 Platform
IP Mask	address of the mask of the sub-network
IP Gateway	IP address of the machine enabling access outside the sub-network.
DNS ¹	IP address of the machine providing the IP address on the basis of the name
Domain name	name of the local network to which the 4000 Platform is connected.

File Export

In the I/O Interfaces menu, select **File Export** to configure the system in order to send traces and results by e-mail.

Parameters to configure the mail feature.

Send Mail	Choose Ethernet if you wish to use the sending mail function.
Sender Mode	Auto or Manual . In Auto mode, you will not have the possibility to reply to the mail sent. In Manual mode, the reply will be sent to the address entered in the line From. Use the button ► to enter into an edition window



If Sender Mode is set to Auto, any reply to an e-mail sent by the 4000 Platform will be lost.

Relay Mode	Auto or Manual . If the e-mail sending is performed via a SMTP network, select the Manual Relay mode and indicate the SMTP server address in the field Mail Relay, using the button ► to open the edition window.
------------	---

1.Domain Name Server

In **Auto** mode, the sending of e-mail is performed automatically.

See ["Send by mail" page 97](#) for more explanation on sending files.

Audio Channel

Select the Hands-free function or the Headset

- If the **Hands-free** function has been selected, adjust the volume in the line **Hands-free Volume**.
- If the **Headset** function has been chosen, adjust the volume in the line **Headset Volume**

Utility VFL Mode

Select the mode of emission of the light signal:

- 1 Hz: frequency of 1Hz (blinking signal)
- CW: signal is emitted in a Continuous Wave

Automatic shutdown

NOTE

The function for automatically switching off the 4000 Platform is available only on battery operation, to save the battery.

This function switches off the 4000 Platform automatically if no operation has been performed and no key actuated for a period selected from this menu. Work in progress is automatically saved.

- To activate this function, open the **Utility** window and move the cursor on to **Auto off**, then choose an option (5, 10 or 30 min.) so that the 4000 Platform will be automatically switched off if no key has been actuated for the period selected.
- To deselect this function go into the **Utility** window, move the cursor on to **Auto off**, then choose option **No**.

Upgrade parameters

When updating the software (see ["Installing a new version of the software" page 102](#)):

- In the server IP address line of the configuration menu, enter the IP address of the PC on which the updating files were loaded.

or

Select **Server Name** and enter the name of the server in which the updating files are set.

- **Use proxy:** if Yes has been selected, enter the proxy address, the user name and proxy password
- **Upgrade Protocol:** select **http** or **ftp** then the user name and password for the protocol used.

Home selection

Multiple / Single

This configuration menu allows to choose if, on the **Home** page, only one function can be deselected (**Single**) or several functions can be selected at the same time (**Multiple**).

NOTE

If the mode **Simple** is selected, the activation of a function in the **Home** page will automatically display the result page for this function.

Printer Parameters for configuring an internal printer, a USB printer or for saving JPG files.

Printer **USB, USB (Land), Files (Formatted), Files (Screen), None.**

If you choose **USB**, you can configure the manufacturer and model type of the printer to be connected on the next two lines. The parameter **USB Land** allows to configure the printer as the USB parameter, but also to print with landscape setting.

Files (Formatted or Screen): allows to print to the JPG format

Files (Formatted) Choosing in the Printer menu, the option **Files (Formatted)**, you can print the open file of the 4000 Platform in the JPG format, exactly as if the file was printed on paper. Therefore, if the file (trace or other) is too large for one A4 page, several JPG files will be created.

Printing a trace to the JPG format

Once the **Files (Formatted)** function is selected:

- 1 Open the trace to be printed in the JPG format

- 2 If necessary, make the modifications on the trace (see user manual of the 4100 OTDR Modules).
- 3 Launch printing by pushing simultaneously the left and right direction keys
The icon  is displayed until the saving process is finished
- 4 Press the **FILE** key to find the JPG file in the Explorer

NOTE

The JPG file will be saved in the current directory, the last directory used.

The name of the JPG file will be: ***name of the trace file_P01.jpg***

P01 corresponds to the page number. Therefore, if the same trace is saved in several pages, the following files will be named: ***name of the trace file_P02*** etc.

Printing another file to the JPG format

Once the **Files (Formatted)** function is selected:

- 1 Open the file to be printed in the JPG format (for example: Microscope etc.)
- 2 Launch printing by pushing simultaneously the left and right direction keys
The icon  is displayed until the saving process is finished
- 3 Press the **FILE** key to find the JPG file in the Explorer

NOTE

The JPG file will be saved in the directory PRINT, on the internal memory of the 4000 Platform.

The name of the JPG file will be: ***date (year/month/day)_time (hour/minute/second).jpg***

Files (Screen) Choosing in the Printer menu, the option **Files (Screen)**, you can print the open file of the 4000 Platform in the JPG format, exactly as it is displayed on the screen.

Therefore, if you make a zoom on the trace for example, the JPG file will only show the zoom section.

Once the **Files (Screen)** function is selected:

- 1 Open the trace or file to be printed in the JPG format.
- 2 Make the necessary modifications
- 3 Launch printing by pushing simultaneously the left and right direction keys.
The icon  is displayed until the saving process is finished
- 4 Press the **FILE** key to find the JPG file in the Explorer

NOTE

The JPG file will be saved in the directory PRINT, on the internal memory of the 4000 Platform.

The name of the JPG file will be: **date (year/month/day)_time (hour/ minut/second).jpg** wether it is a trace file or not.

Printer manufacturer	Use the keys ◀ and ▶ to select the manufacturer corresponding to the printer you wish to configure. By default, a model type will automatically be proposed on the next line, corresponding to your manufacturer choice.
Printer type	If the model type set by default for the chosen manufacturer is not correct, you may change it using the keys ◀ and ▶.
ASCII Mode	Select Graphic or Text according to the printer configuration. Some printers do not recognize the ASCII mode, so that you must select Graphic to print files from the Web Browser.

Applications

PDF and Web Browser Those desktop applications are available with the 4000 Platform.
It opens the same page as the pushing the **FILE** button.
For more information about this function, see [Chapter 6 on page 71](#).

File Explorer This function open the file explorer page. See [Chapter 8 on page 87](#).



It is strongly recommended to perform the installation using the importation of Licence via a USB memory stick.

Enter Manually the Licence

- 1 In the **Home** page, click on **Expert Tools > Upgrades > Install Option > Enter License**
The edition keypad is displayed
- 2 Enter the challenge code of the option, set at the bottom of the file (see [Figure 24 on page 55](#)),

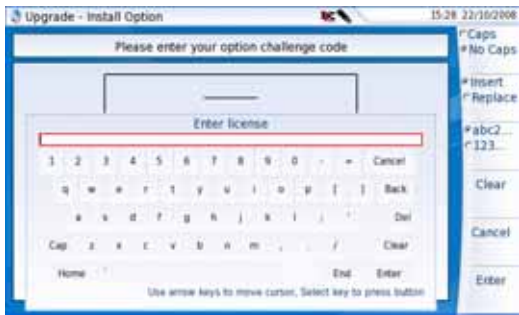


Fig. 25 Enter the Licence code



The license file can be opened via a word processing software such as Word...
The challenge code must be entered exactly as it is in the .lic file, paying attention to the lower-case and upper-case letters etc.

- 3 Press the **Enter** key to validate the code
Your software options will be installed
At the end of this sequence you will be asked to reboot the unit to apply the modifications, pushing the key . Confirm the reboot to restart the Platform.

Import the license from the USB memory stick

- 1 In the **Home** page, click on **Expert Tools > Upgrades > Install Option > Import License**
If the USB memory stick is not already connected to the Platform, a message asking the memory stick insertion is displayed. Confirm it once the stick is connected.

- 2 In the File Explorer, select the USB stick, then the license file (.lic) to be imported,
- 3 Click on **Load > Confirm**
- 4 The challenge codes contained in this file will then be loaded automatically and your software options will be installed.

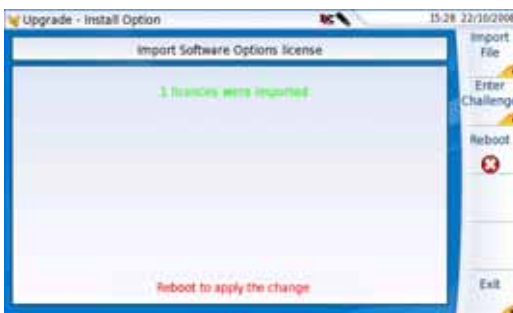


Fig. 26 License imported

At the end of this sequence you will be asked to reboot the unit to apply the modifications, pushing the key . Confirm the reboot to restart the Platform.

Media utilities To get access to the menu, click on **Expert tools** then on **Media utilities**.

Formating a USB memory stick In order to format a USB memory stick, select **Media utilities**, then **Usbflash Format**. Confirm your choice to actually format the USB memory stick.



As for any media formatting, please note that all data present on the USB memory stick will be irremediably lost.



USB memory sticks can be very different.

They differ on Hw and Sw aspects, even inside a given brand.

In particular, USB memory sticks targeting audio recording are often formatted in very specific ways and the format is often very different from a standard FAT.

For all these reasons, we advise users to use memory sticks provided by JDSU.

In any case, USB memory sticks which are recognized by the 4000 Platform (a beep is generated when plugged on the 4000 Platform) but which cannot be read or written, **should be formatted on the 4000 Platform with the Usbflash Format utility in Expert tools > Media utilities.**

If a problem occurs with the USB stick you are using, contact your Local Technical Assistance Center.

**Erase disk / Erase
Extmem**

In **Media Utilities**, select **Erase Disk** or **Erase Extmem** to delete all the disk contents or all the extended internal memory contents into the 4000 Platform.

A confirmation must be validated before the deletion.

**Formating an
extended internal
memory**

In order to format an extended memory (delivered on option), select **Media utilities**, then **Usbflash Extmem**. Confirm your choice to actually format the extended memory.



As for any media formatting, please note that all data present on the extended memory will be irremediably lost.

**Locking the
4000 Platform**

The 4000 Platform can be locked at any time:

- 1 In the **HOME** page, click on **Expert Tools**
- 2 Click on **Instrument Lock Out**
- 3 Confirm the 4000 Platform locking by clicking on **Confirm** (or use the **Cancel** key to cancel the process).
The numeric keypad is displayed
- 4 Enter the password to lock the instrument: **42000** (see "[Example of Edit menu](#)" page 31)



Fig. 27 Password

5 Click on **Enter**

The 4000 Platform locking screen is displayed.



Fig. 28 Locking screen

Click on the **Notepad Message** key to add a message using the text edition (see ["Example of Edit menu" page 31](#)).

Unlocking the 4000 Platform

- Once the locking screen is displayed, click on the key **Unlock Instrument**.
- Enter the password **42000** using the numeric keypad (see ["Numeric Keypad" page 33](#)) and validate.

The screen automatically displays the **HOME** page.

Power meter and VFL (Visual Fault Locator)

5

A variety of options are available when ordering. Option 40PM consists of a power meter; the option 40VFL consist of a VFL with a connector 2.5MM and the option 40PMVFL consists of an optical power meter and a VFL, with 2.5 mm UPP connectors. See references in ["References of options for the 4000 Platform mainframe" page 118](#), for wavelengths of the sources in each option.

The topics discussed in this chapter are as follows:

- ["Principle of optical power and attenuation measurements" on page 62](#)
- ["Connection to the power meter" on page 63](#)
- ["Configuring the Power meter" on page 63](#)
- ["Display of results and commands" on page 65](#)
- ["Making a measurement" on page 67](#)
- ["VFL Function" on page 68](#)
- ["Storing and reloading results" on page 69](#)

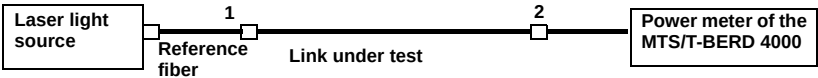
Principle of optical power and attenuation measurements

Power measurements A power meter, is all that is needed to measure emitted or received power:

- to measure emitted power, connect the power meter directly to the output of the optical emitter;
- to measure the power at the input of an optical receiver, the power meter is connected to the end of the fiber, at the point where the optical receiver would be connected.

Attenuation measurements (optical link loss) For measurement of the attenuation of power in a complete link or in elements such as sections of fiber, connections or optical components, a light source and a power meter are required.

This attenuation is usually deduced from the measurement of optical power at two points:



$$\text{Attenuation } A_{(\text{dB})} = P1_{(\text{dBm})} - P2_{(\text{dBm})}$$

To perform accurate measurements, the following conditions are vital

- Use a light source which is stable both in time and as a function of temperature.
- Make sure that all connections and fibers and the receiving cell are perfectly clean.
- Use a reference link between the laser source and the test subject. If several measurements are to be made under identical light injection conditions, this reference fiber must not be disconnected during the period while measurements are taking place.

Insertion loss method

- 1 The power meter is first connected to the laser source via the reference fiber: P1 is measured.
- 2 Then the fiber to be tested is inserted between the reference fiber and the power meter: P2 is measured.

The difference between P2 and P1 gives the attenuation of the fiber under test.

It is preferable to use the same type of connector at both ends of the fiber being tested, to ensure the same connection conditions for measuring P1 and P2.

Accuracy of measurements

- A high degree of accuracy is often required. It is then necessary to perform a preliminary calibration without the fiber under test to eliminate the losses due to connections as far as this is possible. To do this, use the «Reference Value» function.

Connection to the power meter

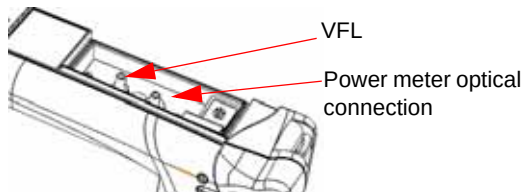


Fig. 29 Optical connectors

The type of optical connector used for the power meter is UPP (Universal Push Pull), which is compatible with all diameter 2.5 mm connectors (FC, SC, ST, DIN, E2000, etc.)

Configuring the Power meter

The power meter function is an option chosen at the time of order and incorporated into the MTS/T-BERD 4000 in the factory.

To activate the function:

- Press the **HOME** button
- Use the direction keys to select the power meter icon (framed in white) and press the **ENTER** key : the icon is selected.



The effect of this action will be to bring the power meter into use.

Configuring the measurement parameters of the power meter

The measurement parameters can be accessed with the **SETUP** key.



Fig. 30 Configuration of power measurement

- Wavelength

Selecting wavelength:
 - Auto: the wavelength of the input signal will be automatically detected and selected to perform the measurement:
850, 980, 1300, 1310, 1420, 1450, 1480, 1490, 1510, 1550 or 1625 nm: measurement performed at specified wavelength.
 - User: choice of wavelength on the next line
- User choice

(if the User option was selected in the Lambda line) selection of the wavelength between 800 nm and 1650 nm, in 1 nm steps, by means of the direction keys ◀ and ▶.
- Beep on Modulation

Select if a sound must be heard whea a modulation occurs (Yes / No)
- Unit

Unit of power displayed:
 - Watt, dBm for displaying absolute power
 - dB for displaying a result relative to a reference (link loss)
- Reference level

If dB units were chosen in the previous line, selection of the reference value for the wavelength selected. Using the direction keys, first choose the wavelength, then press the > key to access choice of the value (+XXX.XX), then confirm this value with the **ENTER** key.

This reference is also automatically available, in the **Results** page, using the **Set as Reference** key.
- Attenuator compensation

Choice of level to be applied to the wavelength chosen for measurement to compensate for the loss due to the external attenuator (+XX.XX dB). First use the direction keys to choose the

wavelength, then press > to access choice of value, then confirm this value by pressing **ENTER**.

NOTE

To copy a Reference Level or a Attenuator Compensator on all wavelengths, select the reference wavelength and click on **Update for All Wavel..**

Configuring the alarm parameters of the power meter

Alarm

Activation of the Alarm function : any result below the lower threshold or above the upper threshold will be displayed in red on the Results page.

Min and max thresholds :

Choice of lower and upper thresholds for each available wavelength, from -60 to +40 dBm (selected with the direction keys).

NOTE

To copy one value of the Lower or/and Upper threshold for all wavelengths, select the reference value and click on **Update for All Wavel..**

NOTE

A continuous push on direction keys increments the value by 10 dBm.

Display of results and commands

The results page called up by the **RESULTS** button, gives the information relating to the measurement in progress, results previously saved and the commands available for measurement and saving.

Result of the measurement in progress

The power measured by the power meter is displayed in large characters, in the units selected in the **SETUP** menu, together with:

- the mode of transmission of the signal measured: continuous (CW) or modulated to a frequency of 270Hz, 330Hz, 1KHz, or 2KHz.
- the wavelength of the signal measured.
- the reference level expressed in dB.
- the level of Attenuation Compensation.

Table of results For one and the same fiber, the power meter displays a table of 9 results corresponding to the different possible wavelengths. The first 4 results are displayed on the screen; to scroll through the other results, use the direction key ▼. The table shows the power measured in dBm, the relative power (in dB) and the reference level in dBm (if units = dB), together with the mode.

- A measurement result is displayed in the table when the **Keep Result** softkey is pressed.
- The **Clear Table** softkey orders deletion of all the results displayed in the table.
- If the Alarm function has been activated, any result that exceeds the selected thresholds appears in red in the table. Otherwise, results are shown in the table in green.
- When the instrument is switched off, results present in the table are saved.



Fig. 31 Results and commands of the power meter

Commands of the power meter parameters When the LTS function is selected, the following softkeys are available on the results page:

Set as Reference Selects the current result as reference value to measure the attenuation of a link. This reference is displayed under the measurement result until a new reference value is chosen.

Zero Adjustment of the Zero value when the power meter's optical input is closed with a plug (a validation is required).

Keep Result	Saves the result on the corresponding line of the table.
Clear Table	Deletes all the results recorded in the table.

Making a measurement

The power meter is started up as soon as the function  is activated in the **SETUP** menu.



Power measurement is automatically updated in consequence. The value «<-60 dB» is displayed when the laser is switched off and if the source output is looped on to the power meter input.

Power measurement

- Connect the light source to be tested to the rear connector (see "[Connection to the power meter](#)" page 63).
- In the **SETUP** menu, choose the units dBm, dB or Watts.
- Press the **START/STOP** key to start the measurement.
The result will appear in the results page and can be memorized in the table (see "[Table of results](#)" page 66).
- Press the **START/STOP** key to stop the measurement.

Optical link loss

Setting the zero value of the power meter



It is important to set the zero of the power meter before making any measurements where accuracy is required, as the noise from the germanium photodiode fluctuates over time and with variations in temperature.

- 1 Fix the plug over the optical input of the power meter so that no light can reach the photodiode of the power meter. If the zero adjustment is made without this plug, an error message may be displayed, as the photodiode will detect too much light.
- 2 In the **Results** page, press the **Zero** soft key and validate.

- Carrying out the reference measurement

1

Fix the adapter corresponding to the jumper to the optical connector of the power meter.

2

Connect the jumper between the input of the power meter and the output of the source.

3

Configure the same wavelength on the source and the power meter.
The power measured is displayed in the results page of the power meter.

4

Press the **Set as Reference** soft key to save the result displayed as reference value.

- Measurements on the fiber under test

After defining the reference value, proceed as follows to make the measurement:

1

Fix the jumpers and connectors needed to connect the fiber to be tested between the source output and the power meter input.

2

In the set-up menu, select dB units.

3

The power displayed in the Power Meter window corresponds to the optical loss of the link tested. It can be displayed in the table (see ["Table of results" page 66](#)).

VFL Function

- VFL connector

The type of optical connector used for the VFL source is UPP (Universal Push Pull), which is compatible with all diameter 2.5 mm connectors (FC, SC, ST, DIN, E2000, etc.)

See [Figure 29 on page 63](#) to visualize the VFL connector.

- Visual Fault Locator function (VFL)

This function is used to emit a red light signal of frequency 1 Hz or in continuous mode into a fiber to detect any defects in the dead zone of the reflectometer, or to identify it.

This function is suitable for short fibers (length < 5 km) or the first few metres of a long fiber.

NOTE

Identification is facilitated by the blinking of light in the fibre.

To emit a light signal into a fiber:

- Connect the fiber to the VFL port on the connectors panel (see [Figure 29 on page 63](#))
- Press the **HOME** key, then press <- and -> to select the VFL icon and confirm by pressing the **ENTER** key.
- You can configure the signal mode in the **System Settings** page > **Utility** > **VFL Mode** (see ["VFL Mode" on page 51](#)).

Selection of this option is compatible with another function (OTDR, etc.).

Storing and reloading results

File Setup Click on the button **FILE** to access the **File** setup. See the chapter «File management» in the user manual «4100 modules series» for a complete description of all parameters, options and the explorer.

Storing results In order to save the results of a measurement, click on **FILE** and select **Store trace**. Two files are being saved :

- The first file is to be used with the MTS/T-BERD 4000 and allows to retrieve all measurement results. It is saved with the extension «.Lts».
- The second file is a ASCII file using tabulations to separate values. It is saved with the extension «.txt» and can be opened by the 4000 Platform via the Web Browser. It has been designed to be used with a spreadsheet program on a PC where it allows to retrieve all measurement results and format them in a nice customized table.

Loading results In order to load the results of a measurement, select a file  with the extension «.Lts» in the file explorer (see the chapter «File management» in the user manual for «8100 modules series»), click on **Load** then **View trace**.

The LTS tab is displayed with the loaded results in the table.

Applications

6

Several desktop applications are provided to you, thanks to the integration of free software released under the free licences (GPL, LGPL, BSB or other). Their purpose is to bring more functionality to the 4000 Platform. JDSU **doesn't provide any warranty or support regarding these free software.**

To access desktop applications, press the button **HOME**, and the soft key **App's**.

The topics discussed in this chapter are as follows:

- "PDF viewer" on page 72
- "Web browser" on page 73
- "File Explorer" on page 78

PDF viewer

General information is provided in this chapter. Please refer to the button  inside the PDF viewer to find the web site where complete documentation may be found.

Opening a PDF document

The simplest way to open a pdf file is to press **FILE**. Select **Explorer**, look for your file and then select **Load >Confirm Load** to load the corresponding file. The file opens automatically in the PDF viewer.

Interacting with a PDF document

Once your document is open, you may browse through different pages very quickly, zoom to a particular level, find a special name or sentence, rotate the page... All these features are available via buttons on the screen.

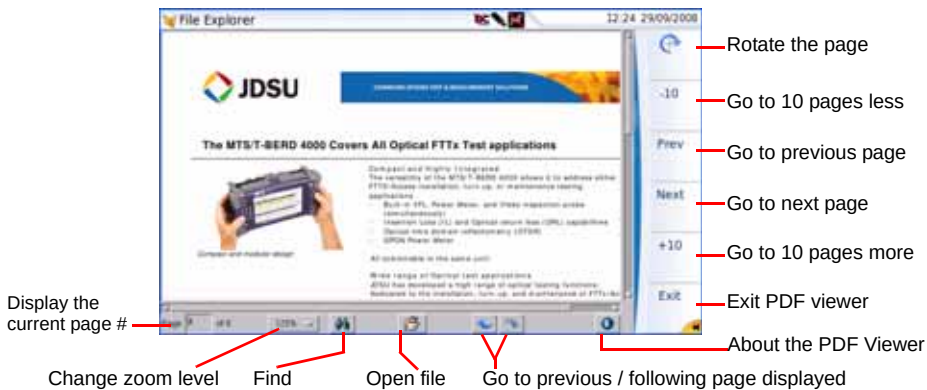


Fig. 32 PDF Viewer Graphical User Interface

The buttons on the right are pressed using the functions keys of the 4000 Platform, the touchscreen or via the mouse. The buttons on the bottom of the PDF viewer, may only be used with a mouse or a touchscreen.

NOTE

You may scroll in all directions using the direction key pad of the 4000 Platform or of an external keyboard, or by dragging the scroll bars with the mouse.

Web browser

Starting the web browser To access this application, on the **HOME** page click on the soft key **App's** > **Web browser**

The web browser is launched.

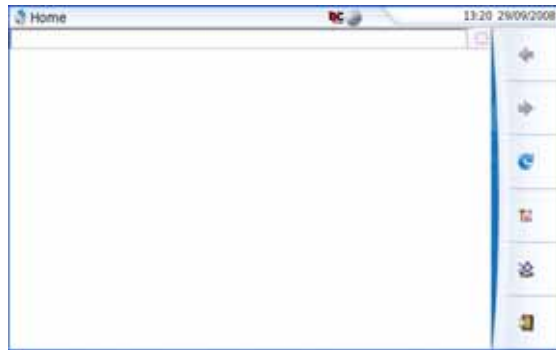


Fig. 33 Web Browser page

Opening an internet page Once the Web Browser is displayed, you must enter the internet address.

- 1 Set the cursor in the address bar:
 - a Use the mouse connected via USB port on the 4000 Platform or the mouse of the PC if the screen is deported via VNC application on the PC.
 - b Click on the icon  so that it becomes . This allows to move the cursor toward the address bar, and to turn from  to .
- 2 Once the cursor set onto the address bar, enter the address:
 - a Using a keyboard connected to the 4000 Platform USB port or the keyboard of the PC with a deport of the screen via VNC, enter the entire address of the site to be opened.
 - b If none keyboard is available, click on the icon  to display the virtual keyboard and enter the address using the buttons on the 4000 Platform (see "[Virtual keyboard](#)" on page 76).
- 3 Push the **ENTER** hard key.

The page opens

If an error message is displayed in place of the internet page, verify the address you typed, or check the proxies configuration (see "Configuring the proxies" on page 74).



Before validating the address, if the virtual keyboard is used, you must deselect the mouse option  (becomes ) and remove the virtual keyboard by clicking on .



Fig. 34 Example of internet page opened with the Web Browser

- During the loading of the page, the icon  is displayed. Once completed, the icon turns .
- The loading can be stopped at any time by clicking on .

Configuring the proxies

For the first use of the Web Browser, or if an error message is displayed instead of the internet page, check the configuration of the proxies.

- 1 Click on  in the following tool bar to access the dialog box which allows to configure the proxies for the internet connection.

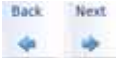


Fig. 35 Configuration of the proxies

- 2 Select the kind of connection:
 - **Direct connection to the internet:** option by default, to be selected if no proxy server is used
 - **Auto-detect proxy settings for this network:** select this option if you wish Firefox detects automatically the proxy parameters for your network.
 - **Manual proxy configuration:** select this option if you do not have a proxy address (URL). Ask your system administrator the ports names and numbers for servers on which the proxy is executed and enter the information in the appropriate fields.
 - **Automatic proxy configuration URL:** if there is no file for the proxy configuration, ask the configuration URL to your system administrator and type it in this field.
- 3 Click on **Ok** to validate the configuration.

Navigation into
the Web
Browser

Once the Web Browser is open, push the key  to display on the right of the screen, the buttons used to navigate.

Icon	Definition
	Go to the previous or next page loaded
	Refresh the actual page
	Exit the Navigation menu

When a link is available in the page, the arrow cursor becomes a hand cursor.

Using the
bookmarks

Once a page is opened, you can apply it a bookmark, in order to get a shortcut toward this page.

Click on 

A new tools bar is displayed on the right of the screen.

Creating
bookmarks

Once the internet page for which a bookmark must be created is opened:

- 1 Click on the icon  to open the dialog box for bookmarks creation.



Fig. 36 Creation of bookmarks

- New icons are available on the right of the screen.
- 2 Click on the icon  to add a bookmark for the page displayed
- 3 Click on the icon  to edit the bookmark, and modify if necessary the name of the bookmark. Click on **Ok** to confirm the modification or **Cancel** to cancel the modifications.

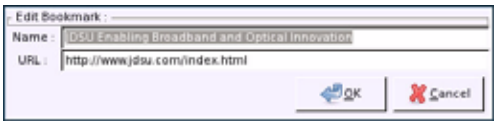


Fig. 37 Bookmark edition

- Click on  to open the page of the bookmark selected in the list
- Click on  to delete the selected bookmark from the list
- Click on  to exit the bookmark menu and go back to the Web Browser page.

Virtual keyboard

- To call the virtual keyboard, click on .
- Click as many times as necessary to move the virtual keyboard position on the page
 - Once the icon becomes , the following click will close the virtual keyboard.

You can use your virtual keyboard using your mouse or your touchscreen to type each key.

NOTE

In case you have neither a mouse nor a touchscreen, you may still move and select keys using the direction keypad  of your 4000 Platform and click on **Enter** to validate each letter.

Virtual Keyboard application menu

You may change the keyboard according to your country and/or access many other functions, by clicking on the key .

This key lets you access the full application menu. You may also access more information about the virtual keyboard.



Fig. 38 Virtual keyboard and application menu

- To leave the virtual keyboard, click on .

Opening a PDF document

PDF documents may be opened and read within the Web browser. Please refer to ["PDF viewer" on page 72](#) for more information about that application.

- When you click on a link toward a PDF file, a dialog box during loading is displayed.
- Once loading is completed, click on **Ok** to open the pdf file.



Fig. 39 Downloading a pdf file

Click on the icon  to go back to the web browser.

NOTE

The web browser will open a PDF document, not a URL including a PDF file.
The PDF is also automatically saved on the disk of the 4000 Platform.

Leaving the web browser

Depending on how long you want to leave the web browser and on your connection mode, you may:

- Leave the web browser running and switch to another task. To do this, click on the **HOME** button.
You can see that the Web icon  remains, to indicate that the web application is still running in the background. Nevertheless, you have now a complete access to all the 4000 Platform functionalities.
To go back, you must select again the **Web Browser** in the **App's** menu. The application will reopen much faster, and all your environment will be the same (last current page, possibilities to go back...)
- Quit the application using the **Web browser** application menu: click on the icon .

File Explorer

This key allows to directly open the MTS/T-BERD 4000 explorer, where all the files are stored (traces, pdf files ...).

The explanation about the explorer are available in [Chapter 8 "File management" on page 87](#).

Scope

7

The scope function is a hot-plug feature enabled directly when inserting a USB scope supplied as an accessory (see ["Reference of Scope" on page 119](#)).

The topics discussed in this chapter are as follows:

- ["Scope feature" on page 80](#)
- ["Scope connection" on page 80](#)
- ["Result display" on page 81](#)
- ["File toolbar" on page 83](#)
- ["Mosaic Mode" on page 85](#)

Scope feature

This feature enables you to verify that your optical connectors are in perfect shape and very clean condition.



Fig. 40 4000 Platform and scope

Scope connection

To use the scope function, use a USB scope supplied by JDSU (see the list of all 4000 Platform accessories in [" on page 119](#)).

- Plug in your scope into a USB port from the 4000 Platform.
- Plug the fiber connector into the microscope fiber slot.
- Push the button **HOME**, then use the arrows keys <- et -> to select the icon **Scope** and validate the selection by pushing the **ENTER** key.



Fig. 41 Activation of Scope icon

You may select this option while other options are already selected (e.g. OTDR)



In order to see the **Scope** icon and select it, you must first make sure that the scope is correctly plugged into an available USB slot, before you reach this screen. If this was not done, quit this screen and come back to it after plugging in your scope correctly. This will refresh your detected devices.

Result display

To display the result, click on **RESULTS** while **Scope** is still actively selected.

Camera mode

Set the key **Camera/Freeze** on **Camera**, to get a live picture of the scope result.



Use the scope wheel to tune the sharpness of the picture.

Luminosity and contrast settings

Luminosity and contrast may be set manually by using the key **Bright/Cont.**. Once you select which parameter you wish to modify, use the arrow keys ▲ and ▼ to tune the luminosity or contrast to the desired value. Note that the set values are displayed on the key.



You may also choose to use the function **Auto Contrast** in order to get settings calculated automatically by the instrument.

NOTE

Saturated parts of the picture appear in yellow. Modify the luminosity and contrast settings or use **Auto contrast** to modify the actual setting and remove saturation.

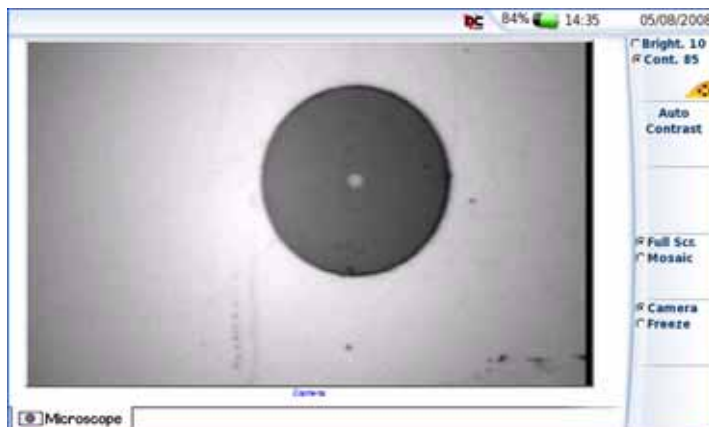


Fig. 42 Example of the result you get using the scope option on a connector

Freeze mode Once the result is acceptable (sharpness, luminosity and contrast are tuned correctly), you may **freeze** the picture. This feature allows to store in memory the resulting picture in order later to compare it to others or save it in a file.



Freezing a scope result does not store the picture in a file (see "[Saving a picture](#)" on page 83). The result will be lost if the instrument is shut off, or if more than 3 pictures are frozen (see "[Mosaic Mode](#)" on page 85).

NOTE

The button set on the lead allows to freeze the picture or to take a snapshot.

Adding a comment

A key **Comment** allows you to enter a comment to your picture if necessary. This comment appears at the bottom left of the picture.

The right bottom of the frozen picture also contains the date of the acquisition (where the picture was frozen).

NOTE

Both the comment and the date will be saved with the picture if that picture is saved later on.

NOTE

The comment may be modified at any time later on.

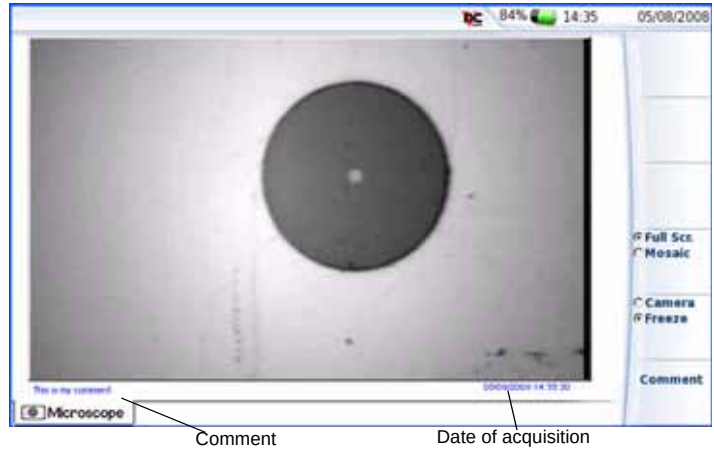


Fig. 43 Frozen Scope image

File toolbar

Click on the **FILE** button to access the File toolbar on the right of the screen.

Saving a picture

It is possible to save the frozen picture resulting from the scope.

To do this, select **Save**. An edition screen is displayed in which to enter alphanumerical characters in order to save the file with an appropriate name.

NOTE

By default, files are saved and read in the directory **disk/Scope**. It is possible to move these files to another place, via the file explorer. However, reading will always be done in the initial directory.

NOTE

Files are saved using the JPG format.

Loading a picture

It is possible to retrieve and load a picture stored in the default directory (see ["Frozen Scope image" on page 83](#) to know the default directory).

- 1 Select **Load**. The list of all files in a JPEG format are presented in a list, showing for each file :
 - An icon indicating the type of JPG file ( unknown picture or  Recognized scope picture)
 - The name of the file
 - The date of acquisition of the picture (only appears for recognized scope pictures)
 - A potential comment (only appears for recognized scope pictures if comment is present)
- 2 Click on **Display** to load the image selected



Fig. 44 List of JPG files that can be loaded

Recognized pictures are images resulting from the Scope option and saved on disk via the 4000 Platform.



Some pictures resulting from the Scope option may appear nevertheless unrecognized, if they have been stored with a different Scope application, or if the JPG file has been opened and modified under another JPG editor. Opening such a picture and saving it again with the current 4000 Platform software version will allow this file to be displayed later with the scope logo.

Even though the JPG editor of the Scope function has been designed to display Scope pictures in black & white, it is also possible to open any JPG valid file and display in color the corresponding picture. That picture is enlarged or shrunk to the size of the display (full screen or mosaic, see ["Mosaic Mode" on page 85](#)).

NOTE

The JPG editor may open all files in a JPG valid format, wether the extension is «.jpg» or «.jpeg».

Click on the **RESULTS** button if you wish to come back to the previous screen

Mosaic Mode

It is possible to display only one picture in full screen (640 * 390 pixels) or up to four pictures (320*180 pixels each, including the live camera picture) in mosaic mode. Use the key **Full scr./Mosaic** to switch from one mode to another.

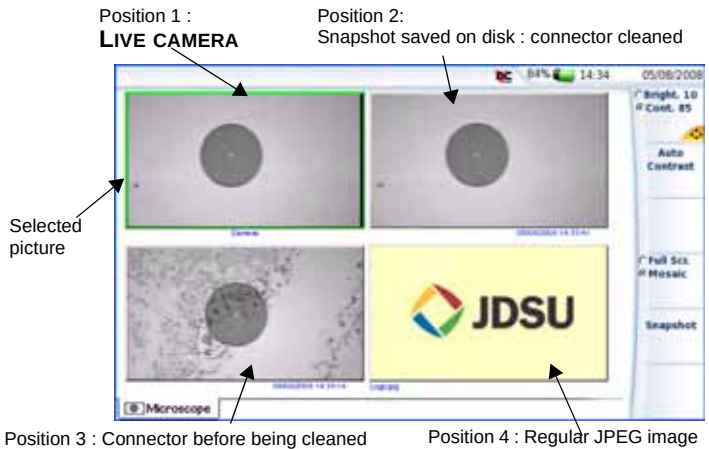


Fig. 45 Mosaic mode

You may select any of the pictures by using the arrow keys ◀ and ▶.

The selected picture is framed in green.

The toolbar on the right varies according to which picture is selected (camera, or static picture).

Camera

All the Contrast and Luminosity settings are available just like in full screen.

Snapshot The live picture from the camera is frozen but does not replace the live picture at position 1. The new snapshot is placed at the second position, and all existing pictures are pushed to the next position.



If all positions were taken, the picture that was once at the fourth position is unloaded from memory. Frozen pictures and snapshots are lost, unless they were saved on the internal memory.

Static pictures

Comment It is possible to add a comment to a picture, just like in full screen.

File toolbar

The File toolbar is also available in mosaic mode. Actions made by this toolbar will concern the selected file.

Click on the **FILE** button to access the File toolbar on the right of the screen.

Up to two choices are presented :

Load Refer to "Loading a picture" on page 84

Save This choice is only available if the picture has been recognised by the system as a Scope picture, either before opening it or after opening it (pictures created with different versions). When this choice is available, refer to ["Saving a picture" on page 83](#).

A new loaded picture will take the place of the selected picture, unless:

- the selected picture corresponds to the camera (first position). In this case, the rule is the same as when a snapshot is made (see ["Camera" on page 85](#)).
- free spots are available in the mosaic. In this case, the new picture takes the second position while other ones are pushed to the next position.

NOTE

Clicking on **Save** while the camera is selected will both create a snapshot (see ["Camera" on page 85](#)) and save it on disk.

File management

8

The files management with the 4000 Platform can be performed, whether a module is set onto the Base or not.



ATTENTION

When no module is set into the 4000 Platform, the file management is restricted. Without any module into the 4000 Platform, the files cannot be loaded and the traces cannot be displayed / saved (see the Module Manual of the 4000 Platform for the file reading and trace display - ref 4100M0/M02/M03).

The topics discussed in this chapter are as follows:

- [“File menu” on page 88](#)
- [“Directory edit function” on page 91](#)
- [“File editing function” on page 93](#)

File menu

- Press the **FILE** button.
The File menu appears.

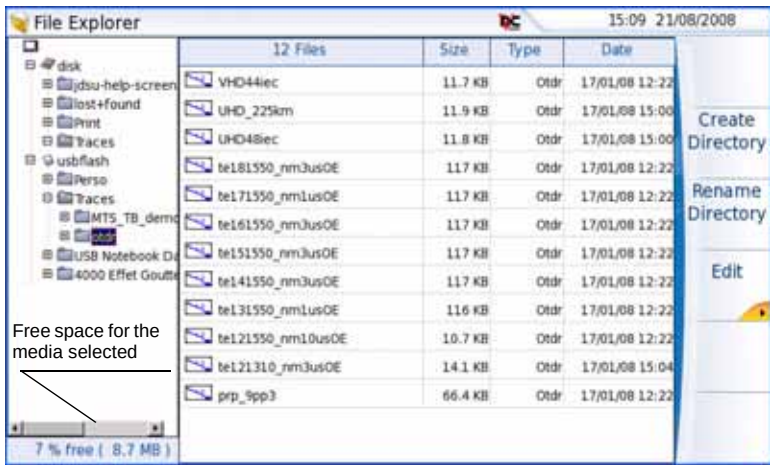


Fig. 46 File Menu

Description of the explorer The explorer is used to select the storage medium, and to create or rename directories and files:

- The left-hand part presents the storage architecture. Use the keys ▲ and ▼ to move around among all the media and their respective directories.
- The right-hand part displays all the files present in the directory selected.

The direction keys can be used to move horizontally between the two parts and vertically within each zone.

Storage media For saving or recalling data, the 4000 Platform offers a wide choice of media, both built-in and external.

Free space on selected media is clearly displayed at the bottom of the left panel.

**Storage media
built into the 4000
Platform**

- An internal memory
- An extended internal memory, on option

**External USB
storage media**

The Base Unit is equipped with 2 USB ports as standard. One of these can be used to connect an external storage medium, in particular a USB memory stick.

NOTE

Although two USB ports are present, it is not possible to use simultaneously more than one external USB storage medium.

For the high capacity USB sticks of 2Go or higher, only the memory sticks provided by JDSU are recommended.

USB memory stick connection

Insert the USB memory stick in one 8000 Base Unit's USB port.

A sound is emitted to confirm the successful insertion and recognition of a USB memory stick.

Then, the icon  is displayed in the upper banner to inform the user the USB stick is ready to be used.

Do not connect a USB memory stick while a USB printer is printing.

If the Base Unit does not emit a beep, disconnect and reconnect the USB memory stick (do not perform this action too quickly - wait 5 seconds between the disconnection and reconnection).

If after several trials, no beep is emitted and no icon is visible, two problems can be considered:

- A previous USB memory stick has not been properly disconnected. Go to ["USB memory stick disconnection" on page 90](#)
- the USB memory stick is not detected by the Base Unit: use another USB memory stick or another storage medium (with the 8000 Base Unit only) or transfer data via Ethernet (see ["Accessing the internal memory or the USB memory stick of the 4000 Platform via a PC" on page 36](#)).

In case of errors, the icon  is displayed:

- The stick is not formatted
- The stick has been removed without prior **Eject USB** key use and some applications are still using it.

If the size of the free space is not correct, the USB memory stick must be formatted.

- a Press the **SYSTEM** button
- b Successively select **Expert Tools>Media Utilities>Usbflash Format**
- c Confirm your choice to format the USB memory stick
- d Once formatted, disconnect the USB memory stick using the **Eject USB** key and reconnect it.



As for any media formatting, please note that all data present on the USB memory stick will be irremediably lost.



When a file is moved in the explorer of the Base Unit, the end of the move on the screen does not mean that writing of data into the memory is complete. Some data may still be in a writing process if the storage unit is removed prematurely.

USB memory stick disconnection

Before disconnecting the USB memory stick, always select a storage device different from usbflash (select disk for example) in the explorer.

Make sure you no longer have any running applications using the usbflash storage media.

The user must push the **EJECT USB** key, which is available in **File > Explorer** or **Link Manager**, but also in **Expert Tools > Media Utilities**.

The icon becomes  to indicate it can be removed safely. In this state, the USB stick cannot be used anymore

The USB memory stick can then be disconnected from the Base Unit's USB port.

NOTE

If the Base Unit operates on battery and is switched off before the USB memory stick is properly disconnected, all the applications using the usbflash storage media will be automatically turned off and the USB memory stick can be disconnected afterwards without any problem.

NOTE

If the 4000 is on mains and is switched off before the USB memory stick is properly disconnected, the Base Unit needs to be completely switched off (using the **ON/OFF** button and main plug unplugged).

Abbreviations for storage media The abbreviations used in the explorer for the different storage media are:

Abbreviation	Storage medium
disk	Internal flash memory (if no hard disk)
usbflash	USB memory stick

Directory edit function

The editing functions are similar to those of other explorers. The directories are at the top left of the screen. If the cursor is in this part, the functions proposed by the keys are specific to the management of the directories.

Selection of directories If the cursor is in the left-hand part of the screen:

- the direction keys can be used to select a directory.
- the **ENTER** key opens the directory selected and closes it when pressed a second time.



Do not confuse "Selected" with "Active". A directory may be displayed in video inverse, to show that it is the current working directory. If it does not have a broken red line round it, it is not active.

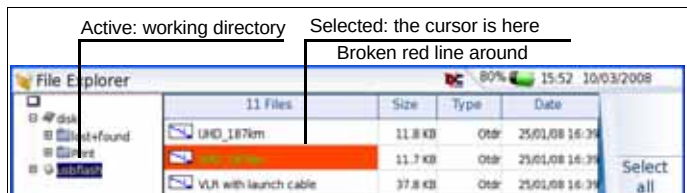


Fig. 47 Selected / Active File

Edition of directories

When a directory is selected, the keys offer different functions available onto the directories.

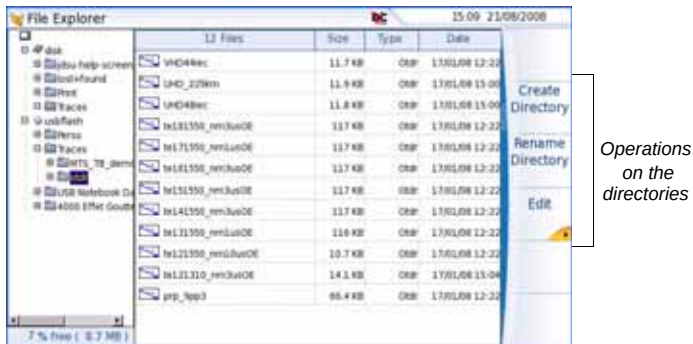


Fig. 48 Operations available on the directories

Create Directory This key allows the creation of a new directory.

- Select the storage media on which the directory will be stored the new directory
- Click on **Create Directory**
The editor enables entry of its name.
- Enter a name for the directory
- Click on **Enter**
The directory is saved in the storage media previously selected.

Rename Directory This function allows to rename the directory selected.

- Select the directory which name must be modified.
- Click on **Rename Directory**
The editor is displayed
- Enter a new nam for the directory
- Click on **Enter**
The directory is saved under a new name, on the same storage media.

Edit This key opens a new menu providing functions for editing the directories.

Copying a directory on the same media or on another media

NOTE

A whole directory with its contents can be copied into another directory or on to another storage medium.

- Select the directory to be copied
- Click on **Copy** or **Cut**
- Select the directory and / or the storage media in which the directory will be placed.
- Click on **Paste**

Remove a directory

The **Edit** menu allows to delete a directory from the storage media.

- Select the directory to be deleted.
- Click on **Delete**

A confirmation message is displayed: click on **Yes** to confirm the directory removal or on **No** to cancel the operation.

File editing function

Once the file(s) is / are selected, several operations are available with the 4000 Platform.

The right-hand part of the screen can be used to work on the files in the directory selected.

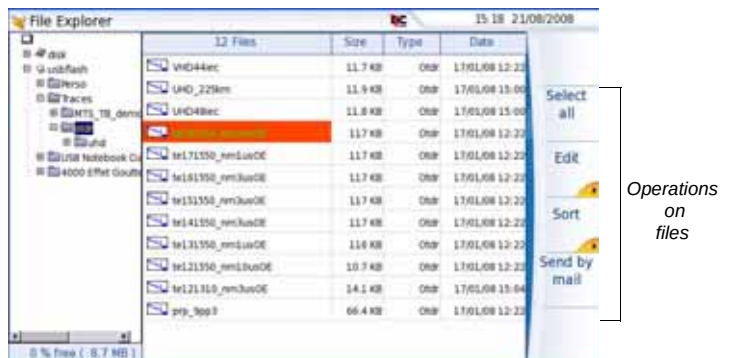


Fig. 49 Available operations on files

File Format and Type A table gives the list of the files in the directory, showing for each one: its name, size, type and date of creation.

File Types For files recognized by the 4000 Platform, the types are symbolized by icons. E.g.

Icon	Type of FO file
	OTDR file (.SOR extension)
	Power Meter file (.LTS extension)

Icon	Type of file
	HTML file (.HTML extension)
	PDF File (.PDF extension)
	Text file (.TXT extension)
	License file (.LIC extension)



With the 4000 Platform, you can open and load any kind of file (OTDR and LTS) even if the corresponding modules are not usable with the Platform.

- Format of files**
- OTDR files that can be read by the 4000 Platform are type Bellcore 1.0, 1.1 and 2.0.
 - The PDF files are opened via the PDF viewer (see [“PDF viewer” on page 72](#)).
 - The HTML and TXT files are openend via the Web Browser (see [“Web browser” on page 73](#)).
 - The LIC files allow to load new licenses (see [“Install Option” on page 55](#)).

To read other formats, use JDSU’s FiberTrace or FiberCable software.

Easy file selection

To select one or several files:

- Click on ► to pass from the directory to the file selection
- Use the arrows ▼ and ▲ to move around the files list.
- Click on **ENTER** to validate the selection of each file wished.

To select all the files from the directory, click on **Select All**.

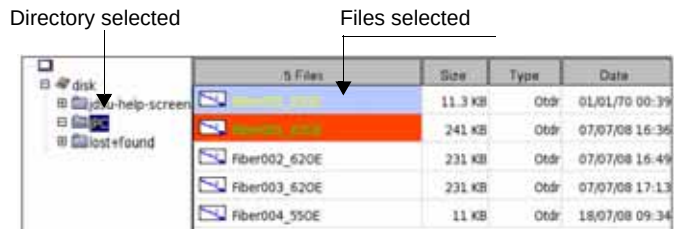


Fig. 50 Selection Directory - File

To select a list of files using the keys of the Platform:

- 1 Select and validate the first file of the list (red display)
- 2 Set the cursor on the last file of the list (blue display)
- 3 Maintain the validation key ► pushed until all the files from the list are selected



Fig. 51 Selection of a list of files

NOTE

If a mouse is used, click on a file to select it, and click again to deselect it.



If no file has been selected by the **ENTER** key, the file where the cursor is positioned is taken as selected.

On the other hand, if a file has been selected with the **ENTER** key, and the cursor is on another file, the latter is not selected!

Rename File Opens the editor to modify the name of the file:

- Select the file in the list
- Click on **Rename File**.
The Editor is displayed.
- Enter a new name for the file.
- Click on **Enter**

Sorting the files Whether files are selected or not, the key **Sort** allows to access to a sub-menu allowing to sort the file according to pre-defined parameters:

- **Sort by name:** the files will be displayed in an ascending order (from A to Z). If you click once again on the key, the files will be displayed in a descending order (from Z to A).
- **Sort by Size:** by clicking once on this key, the files will be displayed from the smallest to the heaviest one. Clicking a second time allows to sort the files in opposite order.
- **Sort by Type:** clicking once on this key; the 4000 Platform will display the files in an ascending order (the file type A to file type W). By clicking again, the 4000 Platform will display the files in opposite order.
- **Sort by Date:** clicking once on this key; the 4000 Platform will display the files from the more recent to the less one. By clicking again on this key, the 4000 Platform will display the files from the older to the more recent one.

Copying one / several file(s) You can copy files from one storage media or from a directory to another.

- Select the file(s) to be copied
- Click on **Copy** or **Cut**
- Select the directory / the storage media in which the file(s) will be saved.
- Click on **Paste**

Merging txt Files

Using the Merge key, with the txt files from measurement results.

When saving a measurement result, in addition to the .LTS file, a txt file is automatically saved for each measurement type '(see ["Storing and reloading results" on page 69](#)).

The key **Merge** is used to merge several txt files from LTS measurements into one txt file, putting together the results of both measurement types.

- In the explorer, select the txt files generated with the LTS and Manual ORL measurements you want.
- Click on **Edit > Merge** key

The file *merged_files.txt* is automatically saved in the same directory as the one where the ORL and LTS txt files have been selected.

NOTE

The file *merged_files.txt* can be renamed once it is saved.

Send by mail

This option appears if **Mail** has been defined with Ethernet, in the system setup menu (see ["File Export" on page 50](#)).

- 1 Select the file(s) to be sent.
- 2 Click on **Send by mail**
The editor is displayed.

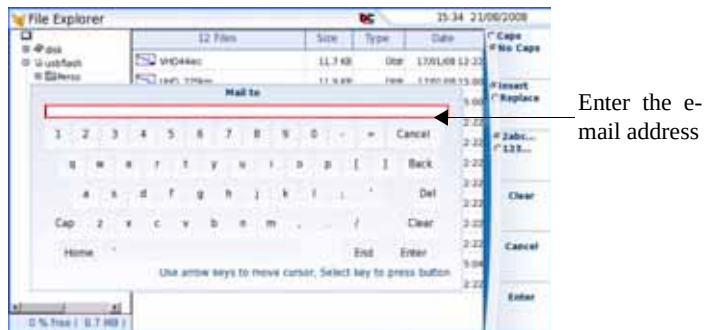


Fig. 52 Enter e-mail address

- 3 You will have to fill in the two following fields:
 - **Mail To:** Using the key ►, display the edition window which allows you to enter the name of the recipient.

- **Subject:** in the same way, enter the subject of the mail or a comment if necessary. By default, the name of the mail is «Result + sending date».

NOTE

If at least one function is selected in the **System** page (yellow icon), this two parameters «**Mail to**» and «**Subject**» can be configured by default in the **Explorer** page > **File Export** (see "[File Export](#)" on [page 50](#))

4 Click on **Enter**

Once the mail has been sent, the following message is displayed: **Mail Sent. Hit any key to continue.**

Maintenance

9

This chapter gives the main maintenance procedure for the 4000 Platform.

The topics discussed in this chapter are as follows:

- “Maintenance procedure” on page 100
- “Cleaning” on page 101
- “Precautions relating to optical connections” on page 101
- “Installing a new version of the software” on page 102
- “Replacement of the small PCB battery (for backup)” on page 108
- “General information on warranty” on page 108
- “Touchscreen calibration” on page 110

For software updates, or to find our JDSU representatives and technical support offices around the world, please visit our web site: www.jdsu.com.

Maintenance procedure

Maintenance work on this instrument must only be undertaken by qualified personnel using suitable equipment.

In most cases, it is advisable to contact the nearest JDSU Service Centre, which will undertake the appropriate troubleshooting and repair work.

The performance and technical complexity of the 4000 Platform class this instrument in a new generation of equipment, for which JDSU has laid down a maintenance policy based on the principle of standard module replacement.

In implementation of this policy, we have set up powerful card troubleshooting test resources in our factories and a rapid dispatch system operating between our factories and branches.

Only by this procedure can the high quality of the instrument continue to be ensured after repair work. This procedure also has the advantage of reducing repair costs and time.

In the interests of quality and efficiency, we strongly recommend adoption of the following procedure in the event of a fault, before any other steps are taken:

- Verify that the instrument is plugged in.
- Check the connections of any peripheral equipment to the 4000 Platform.
- If a fault is detected, or in case of doubt, it is advisable to contact the nearest JDSU Service Centre, which will undertake the appropriate repair work.

Returning an instrument

When returning an instrument, it is essential to indicate the following minimum information:

- the type and serial number of the instrument (on the identification label) and the configuration code (under the bar code)
- a description of the fault found on the instrument.

The returned instrument will then be repaired and calibrated.

Guarantee conditions

Any repair operation supervening within the guarantee period of the instrument will be carried out at the expense of JDSU. However, for any sub-assembly upon which work has been carried out otherwise than by JDSU Service Centers, the cost of a replacement sub-assembly will be invoiced.

Cleaning

Cleaning plates and housings

The front and rear plates and the housings may become tarnished with handling. To clean them, use only a rag moistened with soapy water.

Never use any product containing acetone, trichloro-ethylene, benzine or alcohol, as these will attack the printed markings.

Cleaning the screen

To clean the screen, use an antistatic product.

Precautions relating to optical connections

- The normal operating life of an optical connector is usually of the order of a few hundred manipulations. It is therefore advisable to manipulate the optical connections of the 4000 Platform as rarely as possible.
- The proper operation of the instrument and its accuracy of measurement are dependent on the cleanliness of the environment and the optical connectors as well as the care taken in its manipulation.
- The optical connectors must therefore be clean and dust-free. If the optical connection is not being used, protect the connections of 4000 Platform using the protective plugs provided.

As an example, the results of measurements made with connectors that have not been cleaned will display an error of the order of 10% for all measurements. This error is additional to other errors inherent in the measurement process and due, for example, to the quality of the fiber (circularity and concentricity), the means of connection (axis alignment, distance between fiber faces, quality of fiber faces) and propagation modes.

Cleaning the optical cable connector

- Use a non-linting type of paper, such as Joseph paper, soaked in isopropyl alcohol.
- Pay particular attention to the polished face of the fiber, rubbing it in a direction perpendicular to the axis of the fiber.

Cleaning the optical connections of the 4000 Platform

- Squirt a highly volatile solvent (such as isopropyl alcohol) into the connector.
- Blow out the connector using a clean dry air supply from an aerosol can fitted with an extension.

NOTE

If your module has a universal connector, unscrew its adaptor to access the ferrule.

Installing a new version of the software



When a new software version is loaded, there is a risk of re-initialization of the internal memory. Before installing the new software, it is therefore advisable to save the results in the memory, using the **Save** function called up by the **FILE** button.



Do not interrupt the installation process, as this could damage the instrument.

To avoid any interruption of the installation procedure, the 4000 Platform must be operating on the mains: if the procedure is started while operating on battery, a message indicates that the instrument must be connected to the mains.

Obtaining the New software

The new version of the software can either be procured on a storage medium (CD-ROM or USB stick memory) from your JDSU Customer Service, or can be downloaded from JDSU's internet site: www.jdsu.com.

Downloading from Internet

When the software is obtained from the Internet, it must be saved on a storage medium before the software upgrade of the product can be carried out. To do this, go on the JDSU web site: www.jdsu.fr.

- 1 Open the page of the product concerned: MTS 4000 or T-BERD 4000 Multiple Services Test Platform
- 2 Click on the tab **Downloads**.
- 3 Click on the link 4000 Firmware Update
A new page opens explaining the process

- 4 Follow the instructions to download the exe or jds file and update the 4000 Platform.

NOTE

The jds file must be downloaded if you cannot load the exe file. Once downloaded on your PC, the extension «.jds» must be changed to «.exe».

**Installation
from the
harddisk of a
PC**

- 1 Connect the 4000 Platform into mains with the AC plug, and switch it on.
- 2 Connect the 4000 Platform to the PC by an Ethernet link

NOTE

Use a cross over if the 4000 Platform is directly connected to the PC or a direct cable if the 4000 Platform is connected to the LAN.

- 3 On the PC, download and save the .exe upgrade get from the web (www.jdsu.com)
- 4 Once the transfer is completed, and in order to perform the upgrade, the «.exe» file shall be extracted under a root of the PC. The files extracted shall be placed under C:\ or under a drive created with the following process:
 - a Put the release under a directory, such as C:\4000 Platform_Base_Upgrade:\
 - b Open a DOS console, by selecting **Windows > Start** (bottom right of the PC screen) > **All programs > Accessories > Command prompt.**
 - c Then type the command `subst N: C:\upgrade\`
 - d Close the DOS console.

This command will create a virtual drive N: (N: is an example)¹

- 5 Go to the driver, using Windows Explorer
- 6 Double click on the .exe file: A window called "Winzip self extractor", will appear. Check that the folder is correct i.e. the C:\ drive or the newly created N:\ drive is appearing "Name:\\" then press "Unzip". If not, click on "Browse" in order to select the right drive.

1."N:" may be replaced by another letter if necessary and "4000 Platform_Base_Upgrade" corresponds to the directory where the upgrade files have been unzipped.



Fig. 53 WinZip Self Extractor

A message indicating the number of files that have been unzipped successfully will then appear.

- 7 Press "Close".
- 8 Run **TFTPD32.exe**: note the «Server Interfaces» address which appears in the TFTPD32 window.
- 9 Run **FTP server.exe**. An error message will appear: click on **OK**. The window «Pablo's FTP server» is displayed. Click on the green arrow (or select menu **File > Start**).
- 10 On the 4000 Platform, press the **HOME** key, then **System Settings**: in **Utility > Upgrade Parameters > Server address**, enter the IP address previously noted (see "8" above).
- 11 Quit the **System Settings** menu and then press, in succession, **Expert Tools > Upgrades > Software Upgrade > Upgrade via Ethernet**.
The message «Verify IP address of PC server» appears.
- 12 Click on **Confirm**.
The list of the software versions available on the PC is displayed next to the versions installed on the 4000 Platform.



More recent version on the PC than on the 4000 Platform



Less recent version on the PC than on the 4000 Platform



Identical version on the PC and on the 4000 Platform

- 13 Click on **Show Previous choice** or **Show Next Choice** to display the previous and next versions available.
- 14 Click on **Confirm this Choice** to start the upgrade of the selected software(s).
or
Click on **Confirm All Choices** to upgrade all versions.

NOTE

The software versions list does not always appear (cf previous versions) as well as the **Show Previous / Next Choice** buttons and the **Confirm/Continue** key. In this case, the upgrading starts automatically.

Upgrading begins. The 4000 Platform is automatically rebooted. Upgrading takes several minutes. At the end, the 4000 Platform is automatically restarted.

- 15 On the PC, close the two windows opened to perform the installation.
- 16 Once the upgrade is completed, you may remove the virtual drive (in our example "N:") by using the command `subst N: /d`.

Installation from Ethernet

Before starting the software upgrade via Ethernet, make sure the IP address of the PC server.

- 1 Press, in succession, **Expert Tools > Upgrades > Software Upgrade > Upgrade via Ethernet**.
The message `Verify IP address of PC server` appears.
- 2 Click on **Continue**.
The list of the software versions available on the PC is displayed next to the versions installed on the 4000 Platform.
- 3 Click on **Show Previous choice** or **Show Next Choice** to display the previous and next versions available.
- 4 Click on **Confirm** to start the upgrade of the selected software(s).
or
Click on **Confirm All Choices** to upgrade all versions.

NOTE

The software versions list does not always appear (cf previous versions) as well as the **Show Previous / Next Choice** buttons and the **Confirm/Continue** key. In this case, the upgrading starts automatically.

Upgrading begins. The 4000 Platform is automatically rebooted. Upgrading takes several minutes. At the end, the 4000 Platform is automatically restarted.

Installation from a USB memory stick



You must be equipped with a USB memory stick with a minimum capacity of 128 Mo.

USB memory keys can be very different.

They differ on Hw and Sw aspects, even inside a given brand.

In particular, USB memory keys targeting audio recording are often formatted in very specific ways and the format is often very different from a standard FAT.

For all these reasons, we advise users to use memory Keys provided by JDSU.

In any case, USB memory keys which are recognized by the 4000 Platform (a beep is generated when plugged on the 4000 Platform) but which cannot be read or written, **should be formatted on the 4000 Platform with the Usbflash Format utility, in Expert tools > Media utilities.**

If a problem occurs with the USB key you are using, contact your Local Technical Assistance Center.

Before installing the upgrade, you must format the USB memory stick (steps 1 to 5).

- 1 Insert the memory stick into one of the sockets on the 4000 Platform provided for this purpose.
- 2 Switch on the 4000 Platform
- 3 Press the **HOME** button
- 4 Successively select **Expert tools > Media utilities > Usbflash Format.**
- 5 Confirm your choice to actually format the USB memory stick.
- 6 Once formatted, disconnect the USB memory stick from the 4000 Platform using the key **Eject USB** in the Media Utilities page.



As for any media formatting, please note that all data present on the USB memory stick will be irremediably lost.

- 7 Connect the USB memory stick to the PC
- 8 Unzip the upgrade files on the PC and transfer it to the USB memory stick:
 - a Download and save on your PC the .exe upgrade file that you can get from the web (www.jdsu.com).

- b** Once the transfer is completed, double click on the .exe file: A window called "Winzip self extractor", will appear. Check that the folder is correct i.e. the USB memory stick driver is appearing "Name:\\" then press "Unzip". If not, click on "Browse" in order to select the right USB drive.



Fig. 54 Winzip Self Extractor

A message indicating the number of files that have been unzipped successfully will then appear.

- c** Press "Close".
 - d** Then remove the USB memory stick using the appropriate procedure for your PC
- 9** Insert the memory stick into one of the sockets on the 4000 Platform provided for this purpose.

NOTE

A bip is emitted each time the USB memory stick is inserted or removed from the 4000 Platform.

- 10** Press the **HOME** button, then successively the buttons **Expert tools > Upgrades > Software Upgrade > Upgrade from USB**.
The message Are you sure? is displayed
- 11** Click on **Confirm**.
The list of the software versions available on the PC is displayed next to the versions installed on the 4000 Platform.
- 12** Click on **Previous choice** or **Next Choice** to display the previous and next versions available.
- 13** Click on **Confirm** to start the upgrade of the selected software(s).
or
Click on **Confirm All Choices** to upgrade all versions
- 14** Remove the USB key as prompted
- 15** The 4000 Platform shuts down

- 16** Reinsert the USB as required, in the same USB port as previously (repetitive bips advise you to insert the stick).

NOTE

The software versions list does not always appear (cf previous versions) as well as the **Previous / Next Choice** buttons and the **Confirm/Continue** key. In this case, the upgrading starts automatically.

Upgrading begins. The 4000 Platform is automatically rebooted. Upgrading takes several minutes. During this stage, do not remove the USB stick. Finally, the 4000 Platform is automatically restarted.

Replacement of the small PCB battery (for backup)

The 4000 Platform Lithium battery on the microprocessor board ensures that date, time and certain information data are not lost when the instrument is switched off.

Checking the battery

If there is doubt as to whether the battery needs to be changed or not, switch off the instrument. On switching the instrument on again, check whether the date is still correct. If the date has been lost, the battery needs replacing.

Contact your nearest JDSU Customer Service Centre.

This battery has an average life of more than five years.

Battery replacement should not be carried out by the user: this may be dangerous to the microprocessor board (certain components may be damaged or destroyed) and requires special tools

General information on warranty

The warranties described herein shall apply to all commercially available JDSU products. Any additional or different warranties shall apply only if agreed to by JDSU in writing. These warranties are not transferable without the express written consent of JDSU.

Hardware Warranty

JDSU warrants that Hardware Product sold to customer shall, under normal use and service, be free from defects in materials and workmanship. Information regarding the specific warranty period for this product can be obtained by contacting your local Acterna Customer Service Representative, or at our web site ***www.jdsu.com***.

JDSU 's obligation and customer's sole remedy under this Hardware Warranty is limited to the repair or replacement, at Acterna's option, of the defective product. JDSU shall have no obligation to remedy any such defect if it can be shown: (a) that the Product was altered, repaired, or reworked by any party other than JDSU without JDSU's written consent; (b) that such defects were the result of customer's improper storage, mishandling, abuse, or misuse of Product; (c) that such defects were the result of customer's use of Product in conjunction with equipment electronically or mechanically incompatible or of an inferior quality; or (d) that the defect was the result of damage by fire, explosion, power failure, or any act of nature.

JDSU performed repairs shall be warranted from defective material and workmanship for a period of ninety (90) days, or until the end of the Initial Warranty Period, whichever is longer. Risk of loss or damage to Product returned to JDSU for repair or replacement shall be borne by customer until delivery to JDSU.

Upon delivery of such product, Acterna shall assume the risk of loss or damage until that time that the product being repaired or replaced is returned and delivered to customer. Customer shall pay all transportation costs for equipment or software shipped to JDSU for repair or replacement. JDSU shall pay all transportation costs associated with returning repaired or replaced product to customer.

**WARRANTY DISCLAIMER — FOR HARDWARE AND/OR SERVICES
FURNISHED BY JDSU, THE FOREGOING**

**WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTEES AND
CONDITIONS, EXPRESS OR IMPLIED. JDSU SPECIFICALLY**

**DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR
IMPLIED, ON ANY HARDWARE, DOCUMENTATION**

**OR SERVICES INCLUDING BUT NOT LIMITED TO WARRANTIES
RELATING TO QUALITY, PERFORMANCE, NONINFRINGEMENT,**

**MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE,
AS WELL AS THOSE ARISING FROM ANY COURSE OF DEALING,**

**USAGE OR TRADE PRACTICE. UNDER NO CIRCUMSTANCES WILL
JDSU BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL**

DAMAGES RELATED TO BREACH OF THIS WARRANTY.

Touchscreen calibration

If the 4000 Platform is equipped with a touchscreen, a specific button **Touchscreen Calibration** appears in the right hand corner of the setup screen.

To calibrate the touchscreen

- 1 Push the **SYSTEM** button
- 2 Press the **System Settings** key
- 3 Press the **Touchscreen Calibration** key
A blue slightly smaller screen appears, displaying a little target on the left hand corner .
- 4 Click on this target (preferably with the touchscreen pen).
- 5 A new target appears then and again for a total of 4 times, in order to click on all corners of the screen.

If all the targets are not correctly touched, the touchscreen cannot be used. Otherwise, the touchscreen may be used directly.



Fig. 55 Touchscreen calibration

Technical specifications

10

This chapter contains the technical specifications of the MTS/T-BERD 4000 mainframe.

The topics discussed in this chapter are as follows:

- [“Display” on page 112](#)
- [“Memory” on page 112](#)
- [“Input/Output” on page 112](#)
- [“Power supply” on page 112](#)
- [“Dimensions - Weight” on page 113](#)
- [“Environment” on page 114](#)
- [“Characteristics of the options” on page 115](#)

Display

- Screen**
- Backlight high visibility color screen
 - Size: 7 inches
 - Resolution: 800 x 480 pixels
 - Standard: high visibility screen for indoor and outdoor use, non-tactile.
 - Options: High visibility touchscreen

Memory

- Standard memory: internal memory, minimum capacity 512 Mb (with a minimum of about 32 Mb are available for data storage)
- Options:
 - Extension memory 1Gb or higher

Input/Output

- two USB 2.0 Master ports, for printer, mouse, keyboard, memory key, camera, optical microscope, etc.
- one RJ 45 connector for Ethernet interface 10/100/1G
- built-in microphone and loudspeaker

Power supply

Battery The instrument can be supplied with one Lithium Ion 6 cells (7400 mV) or 9 cells (11100 mV) battery.

Endurance of the MTS/T-BERD 4000 with battery

Measurement conditions:

- at +25 °C,
- at full battery capacity (6.6 Ah),
- MTS/T-BERD 4000 equipped with one OTDR LM module

Endurance

	Endurance	
Conditions of use	6 cells battery (7400 mV)	9 cells battery (11100 mV)
According to Telcordia GR-196-CORE recommendation: Normal conditons, with normal backlight, 3 acquisition of 30 seconds per quarter of hour, auto off	up to 7 hours	up to 11 hours.
Under continuous acquisition, with high screen backlight	Up to 3h15	Up to 5h15

Mains adapters

	Standard Mains Adapter
Input	100-250 V, 50-60 Hz
Output	15V DC 3,7 A max
Compliance	EN 60950

Dimensions - Weight

	Weight	
User interface module without options, battery nor module	1.2 kg	2.65 lbs
User interface module with a 6 cells battery, one OTDR LM Module and one dummy module	2.2 kg	4.85 lbs
User interface module with a 9 cells battery and one Copper/VDSL module	2.3 kg	5.1 lbs
OTDR LM Module	366 g	0.80 lbs
9 cells battery	490 g	1.08 lbs
6 cells battery	344 g	0.76 lbs
Dummy module	208 g	0.46 lbs
VFL/PWM option	26 g	0.06 lbs

	Dimensions (mm) (H X W X D) Bumpers included	Dimensions (mm) (H X W X D) W/o bumpers
Without module	57.5 x 282 x 153	56.5 x 275 x 129
With 2 small modules	97 x 282 x 153	93 x 275 x 129

Environment

Temperature

Options not included and modules combined dissipation < 10 Watts: – Operation on mains supply – Operation on 9 cells battery, ventilated version	-20°C to +50°C (-4°F to +122°F)
– Operation including all options (guaranteed specifications)	0° to +40°C (+32°F to +104°F)
– Storage	-20°C to +60°C (-4°F to +140°F)

Humidity – 5 to 95% without condensation

EMI/ESD – CE class B Compliant (EN61326-1)
– FCC Part 15 Class B Compliant

Drop test In accordance with the Telcordia GR-196-CORE recommendations, the MTS/T-BERD 4000 resists the following test:

- 6 impacts dropped from a height of 1m on a pinwood floor of 5 cm thickness (1 impact on each of its 6 sides, with power off).

Shocks The MTS/T-BERD 4000 resists the following test:

- 3 shocks per axis along each of the 3 axes, with power off.
- Impacts of 15g, 1/2 sine, duration 11 ms, at 10 second intervals.

Bumps The MTS/T-BERD 4000 resists the following test:

- 1,000 bumps per axis along each of the 3 axes, with power off.
- Jolts of 15g, 1/2 sine, duration 6 ms, at 1 second intervals.

Vibration The MTS/T-BERD 4000 resists the following vibration tests:

- Complete test comprising 6 cycles along each of the x, y and z axes.
- One cycle of 5 to 200 Hz and back to 5 Hz with a sweep duration of one minute/octave.
- 3 mm amplitude displacement test, for the range 5 Hz to 15 Hz.
- 3g acceleration test for the range 16 Hz to 200 Hz.

Flammability The housing of the MTS/T-BERD 4000 (in ABS, type V0) does not propagate fire.

Characteristics of the options

Power meter option Specifications given for 25°C, after 20 minutes stabilization time and after zero setting.

- Wavelength range: 800 to 1650 nm in steps of 1 nm
- Calibrated wavelengths: 850 / 1310 / 1550 nm
- Accuracy at calibrated wavelengths: ± 0.2 dB (at -30 dBm)
- Input power range : -60 dBm to +10 dBm
- Maximum resolution: 0.01 dB / 0.01nW
- Measurement range: +5 to -50 dBm (-45 dBm from 800 to 1250 nm)
- Linearity within the measurement range: ± 0.2 dB

VFL

- Wavelength: 635 nm
- Length of fiber: up to 5 km
- Class 2 laser (standards EN60825-1 and FDA21 CFR Part 1040.10).

- WIFI and** – WIFI:standard IEEE802.11b/g
- Bluetooth** – Bluetooth Option
- Options (future** – Class 2
- functions)** – Range: Up to 10 meters

Options and accessories

11

This chapter shows the references of the options and accessories of the 4000 Platform.

The topics discussed in this chapter are as follows:

- [“References of options for the 4000 Platform mainframe” on page 118](#)
- [“Reference of Scope” on page 119](#)
- [“References of accessories” on page 119](#)
- [“References of manuals” on page 119](#)
- [“References of result processing software” on page 120](#)

References of options for the 4000 Platform mainframe¹

	Reference
Base Unit references	
MTS-4000 Platform	M4000
T-BERD 4000 Platform	TB4000
MTS-4000 Platform with touchscreen	M4000T
T-BERD 4000 with touchscreen	TB4000T
Memory options	Reference
Extended internal Memory	40EXTMEM
Power Meter / VFL / Wifi / Bluetooth options	Reference
Optical Power Meter with 2.5 mm UPP connector	40PM
VFL with UPP connector	40VFL
Optical Power Meter and VFL, with 2.5 mm UPP connectors	40PMVFL
Battery options	Reference
Additional 6 Cell Li-Ion rechargeable battery	LIION6C
Mains options	Reference
Additional standard AC/DC adapter/charger (USA)	40PWUS
Additional standard AC/DC adapter/charger (UK)	40PWUK
Additional standard AC/DC adapter/charger (Europe)	40PWE
Additional standard AC/DC adapter/charger (Australia)	40PWAU
Cigarette lighter adapter for 4000 Platform	40Lighter

1. These options must be ordered together with the instrument.

Reference of Scope

	Reference
Quick Capture Video Microscope, 200x/400x with USB converter, includes FC, SC, SC-APC, LC, U25M, U25MA & U12M tips, Soft Case	EFSCOPE400

References of accessories

Carrying Cases	Reference
Large Soft case for MTS/T-BERD 4000 modules	40LMODSCASE1
Soft case for small MTS/T-BERD 4000 modules	40SMODSCASE1
Glove Soft Case for MTS/T-BERD 4000 Platform	40GLOVE
Wrap-around Soft Case for MTS/T-BERD 4000 Platform	40SCase1
Straps	
Handstrap for MTS/T-BERD 4000 Platform	40HANDSTRAP1
Hookstrap for MTS/T-BERD 4000 Platform	40HOOKSTRAP1

Keyboard/Mouse	Reference
USB mouse	E80mouse
USB QWERTY keyboard	E80keyB

References of manuals

User manual for 4000 Platform	Reference
Printed User manual for 4000 Platform platform (French)	E4000M01
Printed User manual for 4000 Platform platform (English)	E4000M02

User manual for 4000 Platform	Reference
Printed User manual for 4000 Platform platform (German)	E4000M03
4000 Platform user manual (USB stick)	E4000MUSB

References of result processing software²

	Reference
Optical Fiber Trace software	EOFS100
Optical Fiber Trace software (5 licences)	EOFS1005L
Optical Fiber Trace software (site licence)	EOFS100SL
FiberTrace software - update	EOFS100UP
Optical Fiber Cable software	EOFS200
Optical Fiber Cable software (5 licences)	EOFS2005L
Optical Fiber Cable software (site licence)	EOFS200SL

2.Free software updates on the Web (but without user manual)

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